

MISSOURI PUBLIC SERVICE COMMISSION

STAFF

REBUTTAL REPORT



AMEREN MISSOURI

CASE NO. EA-2026-0183

*Jefferson City, Missouri
August 11, 2026*

**** Denotes Confidential Information ****

***** Denotes Highly Confidential Information *****

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AMEREN MISSOURI
CASE NO. EA-2026-0183**

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1 **STAFF REBUTTAL REPORT**

2 **AMEREN MISSOURI**

3 **CASE NO. EA-2026-0183**

4 **I Executive Summary**

5 This Executive Summary provides a conceptual framework for the Commission
6 and the parties in reading Staff’s Rebuttal Report and summarizes the principal findings
7 and conclusions developed more fully in the testimony that follows.

8 On May 22, 2026, Union Electric Company, d/b/a Ameren Missouri (“Ameren
9 Missouri”) filed an Application requesting Certificates of Convenience and Necessity
10 (“CCNs”) authorizing it to construct, install, own, operate, maintain, control, and manage
11 six projects at five locations in Missouri:

- 12 1. the **Tom Sawyer Solar Project**, a 175-megawatt (“MW”) solar generation
13 facility in Audrain County;
- 14 2. the **Ringer Solar Project**, a 225-MW solar generation facility in Stoddard
15 County;
- 16 3. the **Castle Bluff BESS Project**, a 95-MW, four-hour battery energy
17 storage system (“BESS”) at the former Meramec Energy Center site in
18 St. Louis County;
- 19 4. the **Huck Finn BESS Project**, a 200-MW, four-hour BESS at Ameren
20 Missouri’s Audrain Energy Center in Audrain County;
- 21 5. the **Millcreek BESS Project**, a 250-MW, four-hour BESS in Lincoln
22 County; and
- 23 6. the **Quinn Switching Station**, a new 161-kilovolt switching station in
24 Lincoln County needed to interconnect the Millcreek BESS Project.

1 The Tom Sawyer and Ringer Solar Projects will provide a combined 400 MW of solar
2 generation. The three BESS Projects will provide a combined 545 MW of four-hour battery
3 storage. The Tom Sawyer and Ringer Solar Projects will be acquired under Build Transfer
4 Agreements (“BTA”).

5 Ameren Missouri also requests a variance from 20 CSR 4240-20.045(6)(J)
6 concerning the timing for submission of plans for restoration of safe and adequate
7 service.

8 Staff reviewed Ameren Missouri’s Application and supporting direct testimony;
9 responses to Staff data requests (“Data Request” or “DR”); confidential contracts and
10 procurement materials; Ameren Missouri’s integrated resource planning analyses and
11 projected capacity positions; Renewable Energy Standard (“RES”) compliance
12 requirements; project costs and tax-credit assumptions; construction arrangements and
13 proposed in-service criteria; siting and safety information; projected cost-of-service and
14 class-rate impacts; potential Plant-in-Service Accounting (“PISA”) and Renewable Energy
15 Standard Rate Adjustment Mechanism (“RESRAM”) treatment; anticipated federal
16 income-tax credits and Chapter 100 arrangements; public comments; and testimony
17 presented at the local public hearings.

18 Staff also analyzed Ameren Missouri’s projected need for accredited capacity
19 under scenarios in which projected large loads do and do not materialize; projected
20 Renewable Energy Credit (“REC”) requirements depending upon whether large-load
21 customers provide their own renewable resources or renewable attributes; Ameren
22 Missouri’s competitive procurement processes for the Solar and BESS Projects; proposed

1 solar and BESS capital costs in comparison with Ameren Missouri’s Integrated Resource
2 Plan (“IRP”) assumptions and available industry benchmarks; Ameren Missouri’s
3 financial ability to undertake the Projects; the potential safety risks associated with the
4 BESS Projects; and project-specific engineering and operational matters.

5 Staff used the five factors identified by the Commission in *In re Tartan Energy*,
6 3 Mo. P.S.C.3d 173 (1994), as an analytic framework: need, qualifications, financial ability,
7 economic feasibility, and promotion of the public interest. Those factors provide an
8 overarching framework for organizing the evidence, but the Commission’s inquiry does
9 not end with a surface-level application of the Tartan considerations. Each CCN
10 application must be evaluated in light of the particular regulatory, operational, economic,
11 and ratemaking circumstances presented by the projects under consideration.

12 **Need**

13 Staff’s finding of need, supported by Staff Witness Malachi Bowman, depends
14 principally upon whether the large loads projected by Ameren Missouri are sufficiently
15 likely to materialize and whether the customers responsible for those loads will provide
16 sufficient renewable resources or renewable attributes to support their own usage.

17 Ameren Missouri represents that customers associated with approximately
18 2,800 MW of new large load have signed Electric Service Agreements (“ESA”).
19 Staff’s analysis indicates that, if those loads materialize as Ameren Missouri projects,
20 Ameren Missouri will require substantial additional accredited capacity. The Projects will
21 help address that requirement, although they will not eliminate Ameren Missouri’s
22 projected capacity shortfall.

Whether those projected loads are sufficiently likely to materialize is a factual question for the Commission to determine from the evidence presented by all parties. Staff's analysis assumes that the projected loads are sufficiently probable to warrant action now, based upon the signed ESA and the construction lead time required for additional resources, despite uncertainty concerning the amount and timing of new large load customers. Staff's finding of need is, therefore, contingent upon the Commission making that factual determination.

The BESS and Solar Projects address different aspects of the need asserted by Ameren Missouri. The BESS Projects will provide accredited capacity, including winter capacity, as well as meaningful operational flexibility. Four-hour BESS facilities, however, are limited by the amount of stored energy available and by opportunities to recharge during prolonged winter reliability events. Additionally, their capacity value may, therefore, decline as battery penetration increases and winter stress events become longer. That limitation bears directly upon the extent to which the proposed BESS Projects satisfy the long-term capacity need asserted in this case.

The Solar Projects will provide comparatively little accredited winter capacity, particularly beginning in 2030, but will produce energy and also RECs that may be used for RES compliance.

If the projected large loads do not materialize, or if those customers provide renewable resources or renewable attributes sufficient to exclude their usage from Ameren Missouri's RES requirement, Staff's analysis indicates that Ameren Missouri could meet its projected RES obligations for approximately the next ten years using

1 existing and already-approved resources together with prudent REC purchases. If the
2 projected large loads materialize without providing all necessary renewable attributes,
3 however, Ameren Missouri will require substantially more RECs. The Solar Projects would
4 reduce, but would not eliminate, the number of additional RECs Ameren Missouri would
5 need to purchase if large loads materialize.

6 Staff, therefore, concludes that, if the projected large loads materially develop and
7 do not provide all of their own renewable attributes, additional accredited capacity and
8 RECs will be needed. The BESS Projects will partially address the capacity requirement,
9 and the Solar Projects will partially address the RES compliance requirement.

10 **Qualifications**

11 Staff Witness Amanda Arandia, concludes that Ameren Missouri is qualified to
12 construct, own, operate, maintain, control, and manage the Projects.

13 **Financial Ability**

14 Staff Witness Seoung Joun Won, PhD reviewed the estimated base and
15 risk-adjusted costs of the five generation and storage projects, together with Ameren
16 Missouri's proposed financing, liquidity, planned capital expenditures, access to capital
17 markets, credit ratings, and the financial support available from its parent company,
18 Ameren Corporation.

19 Ameren Missouri proposes to finance the Projects through operating cash flow,
20 short- and long-term debt, and equity contributions from Ameren Corporation. Staff's pro
21 forma analysis indicates that the Projects would produce a change of less than one

1 percentage point in the equity ratios of Ameren Missouri and Ameren Corporation and
2 would not materially alter their financial risk profiles.

3 Both Ameren Missouri and Ameren Corporation maintain investment-grade credit
4 ratings. The expected costs of the Projects constitute less than ten percent of Ameren
5 Missouri's projected capital expenditures for 2026 through 2030.

6 Staff, therefore, concludes that Ameren Missouri has the financial ability to
7 construct, operate, and maintain the Projects.

8 **Economic Feasibility**

9 In light of the magnitude of the projected need identified in Staff's testimony,
10 Staff Witness Hari K. Poudel, PhD concludes that the Projects are of sufficient importance
11 to warrant their expense. That conclusion, nevertheless, requires consideration of the
12 actual characteristics and costs of the particular resources proposed.

13 The four-hour duration of the BESS Projects affects both the degree to which those
14 Projects satisfy the identified need and the value received for their cost. Four-hour storage
15 provides accredited capacity and meaningful operational flexibility, including winter
16 capacity, but its usefulness during prolonged reliability events is constrained by the
17 amount of stored energy available and by opportunities for recharge. The economic value
18 of that capacity, therefore, must be considered in terms of duration as well as quantity.

19 Staff also considered Ameren Missouri's reliance in part upon its 2025 IRP. An IRP
20 evaluates long-term portfolios using assumptions concerning generic resource types.
21 At this time, it does not substitute for project-specific economic analysis of the particular
22 facilities for which CCNs are requested.

Staff's review identified material differences between the solar-cost assumptions used in Ameren Missouri's IRP and the costs of the Tom Sawyer and Ringer Solar Projects presented in its CCN application. The proposed Solar Project costs also materially exceed relevant industry benchmarks. Project-specific costs may be affected by interconnection requirements, site conditions, labor, tariffs, permitting, supply-chain conditions, and other factors. Those differences, nevertheless, must be recognized in evaluating the economic feasibility of the particular Projects proposed.

The proposed BESS capital costs, by comparison, are more closely aligned with Ameren Missouri's recent IRP assumptions and available industry benchmarks.

Taking into account the projected need, the competitive procurement processes, the ability of the BESS Projects to provide accredited capacity and operational flexibility, the duration limitations of four-hour storage, and the ability of the Solar Projects to provide energy and RECs, and also allowing for the other evidentiary concerns and issues outlined above, Staff concludes that on balance, the Projects are economically feasible.

Public Interest

In reaching its conclusion concerning the public interest, Staff considered the matters discussed throughout its testimony, including the need the Projects are intended to serve, project safety, public comments, environmental and land-use concerns, potential rate impacts, and the regulatory and ratemaking consequences of committing substantial utility capital to resources intended in significant part to meet projected future loads.

1 Most importantly, Staff considered the need the Projects are intended to serve.
2 Staff's public-interest conclusion is contingent upon the Commission finding that the
3 projected large loads are sufficiently likely to materialize and that the resulting capacity
4 and renewable-energy requirements warrant action now. **Staff concludes that preparing**
5 **now to meet the identified needs through the Projects is in the public interest.**

6 In reaching this conclusion, Staff considered further:

7 The public comments and testimony presented at three in-person local
8 public hearings and one virtual local public hearing. As of July 31, 2026,
9 fifty-nine comments had been submitted in the Commission's
10 Electronic Filing and Information System. The substantive written
11 comments opposed the Application. Testimony presented at the
12 hearings was mixed, although substantial opposition was expressed.

13 The principal public concerns included:

- 14 • loss of agricultural land;
- 15 • BESS fires and thermal-runaway events;
- 16 • the capabilities and costs of local volunteer fire departments;
- 17 • possible environmental and water-quality effects;
- 18 • decommissioning and remediation responsibility;
- 19 • the availability of environmental and wildlife studies;
- 20 • the possibility that the Projects are being constructed primarily to serve
21 future data centers; and
- 22 • the effect of the Projects upon existing customers' rates.

23 Staff Witness Randall T. Jennings also performed illustrative rate-impact modeling.
24 That modeling is not a prediction of future rates and relies upon Ameren Missouri's
25 present allocation methods and assumptions. It nevertheless indicates that existing

1 residential and other customers could bear material portions of the Projects' costs even
2 if the projected 2,800 MW of large load is added.

3 Questions concerning the ultimate allocation and recovery of costs incurred to
4 serve those loads, therefore, remain significant. They are, however, analytically distinct
5 from the present determination whether the Projects themselves satisfy the requirements
6 for CCNs.

7 **Overall Summary**

8 Staff's analysis leads to five related conclusions.

9 First, the Projects are needed if the projected large loads materially develop as
10 Ameren Missouri anticipates. The need for the Solar Projects depends upon the extent
11 to which those large-load customers provide their own renewable resources or
12 renewable attributes. Whether the projected large loads are sufficiently likely to
13 materialize is a factual determination for the Commission to make from the evidence
14 presented by all parties.

15 Second, Ameren Missouri is qualified to construct, own, operate, maintain,
16 control, and manage the Projects.

17 Third, Ameren Missouri has the financial ability to undertake the Projects without
18 materially altering its financial risk profile.

19 Fourth, the Projects are economically feasible, taking into account the magnitude
20 of the projected need, Ameren Missouri's procurement processes, the capacity and
21 operational benefits of the BESS Projects, the duration limitations of four-hour storage,

1 and the energy and REC production of the Solar Projects, while recognizing the
2 project-specific cost concerns identified in Staff’s testimony.

3 Finally, the Projects promote the public interest if the Commission finds that the
4 projected large loads are sufficiently likely to materialize and that the resulting capacity
5 and renewable-energy requirements warrant action now.

6 *Staff Witness: Claire M. Eubanks, PE*

7 **Executive Summary of Staff Recommendations and Conditions**¹

8 Staff’s recommendations and proposed CCN conditions serve related but distinct
9 purposes. The **recommendations** identify determinations Staff asks the Commission to
10 make, matters Staff asks the Commission expressly to reserve for future proceedings, and
11 prospective planning directions Staff believes should follow from this case.
12 The **conditions**, by contrast, are specific requirements Staff proposes that the
13 Commission attach to the CCNs in order to provide continuing construction, safety,
14 performance, cost, tax-credit, and customer-protection oversight.

15 **Staff Recommendations**

16 Staff recommends that the Commission grant Ameren Missouri’s requested CCNs
17 for the Tom Sawyer Solar Project, Ringer Solar Project, Castle Bluff BESS Project,
18 Huck Finn BESS Project, Millcreek BESS Project, and Quinn Switching Station, subject to
19 the recommended conditions summarized below. Staff also recommends that the

¹ Please Note: What follows here is an “executive summary.” Please see the testimony in the body of this rebuttal for any attachments which may be recommended as a part of any ordered conditions or recommendations.

Commission grant Ameren Missouri's requested variance from 20 CSR 4240-20.045(6)(J), subject to the restoration-plan filing requirements applicable to the Projects.

Apart from the conditions attached to the CCNs, Staff recommends that the Commission make or preserve the following determinations:

1. **Reserve ratemaking and prudence issues.** Approval of the CCNs should not determine prudence, cost allocation, Plant-in-Service Accounting ("PISA") eligibility, Renewable Energy Standard Rate Adjustment Mechanism ("RESRAM") eligibility, rate-base treatment, rate recovery, or the amount, if any, ultimately included in customer rates. Those matters should remain for future rate proceedings based upon the circumstances then existing.

2. **Preserve the PISA issue.** The Commission should recognize that approval of the CCNs does not determine PISA eligibility and should preserve Staff's position that qualifying electric plant shown in a future proceeding to have been constructed to serve new large-load customer premises should be excluded from the applicable PISA calculation.

3. **Protect nonparticipating customers from subscriber-program shortfalls.** Nothing in the CCN order should authorize recovery from nonparticipating customers of an identified shortfall associated with a subscriber program.

4. **Preserve future prudence review of the Solar Projects.** The Commission should preserve for future review whether Ameren Missouri knew or reasonably should have known, before making an irreversible commitment to a Solar Project, that the Project was no longer needed for RES compliance because the relevant large-load

customers' usage would be excluded from the RES portfolio requirement. Staff preserves its position that if Ameren Missouri imprudently proceeds after learning that a facility is no longer needed for the purpose relied upon to support its CCN, the resulting financial consequences should be borne by Ameren Missouri rather than its customers.

5. **Require project-relevant assumptions in future CCN analyses.** Ameren Missouri should use updated, project-relevant solar-cost assumptions in future CCN applications that rely upon IRP modeling.

6. **Require examination of longer-duration storage.** In its first IRP filed under Section 393.1900, RSMo., Ameren Missouri should evaluate prolonged winter stress events and compare four-hour battery storage with longer-duration alternatives, including eight-hour storage.

7. **Require updated economic analyses when material assumptions change.** Before that IRP is filed, any economic analysis relied upon for a future CCN application should be updated when material changes occur in capital costs, resource availability, tax-credit assumptions, fuel prices, market prices, or other material resource-specific assumptions.

These recommendations preserve the distinction between granting authority to construct the Projects now and deciding later who should bear their costs, what ratemaking treatment they should receive, and whether Ameren Missouri acted prudently as circumstances developed.

Conditions of the CCNs

Staff separately recommends that the Commission attach conditions to the CCNs addressing four principal subjects: **construction and safety; in-service performance; cost and tax-credit oversight; and subscriber-program/customer protection.**

A. Construction, Safety, and Engineering

Staff recommends continuing project-specific oversight throughout construction and after completion. Ameren Missouri should:

1. file quarterly, project-specific construction reports addressing permitting, plans, specifications, construction costs, milestones, schedule delays, mitigation measures, tariffs, tax credits, Foreign Entity of Concern requirements, and other legislative or executive actions materially affecting the Projects;
2. include with those filings the construction reports received from the developers of the Tom Sawyer and Ringer Solar Projects;
3. submit required state, federal, and local permits for the BESS Projects and Quinn Switching Station;
4. submit the site-specific Hazard Mitigation Analysis and Hazard Mitigation Plan for each BESS Project when completed;
5. submit procedures, practices, or plans developed for environmental mitigation or containment as part of a BESS fire-response strategy;
6. submit an overview of plans for restoration of safe and adequate service following significant unplanned or forced outages no later than 90 days before each Solar or BESS Project is placed in service, followed by final restoration plans no later than 60 days after the Project is placed in service; and

1 7. submit final as-built engineering drawings for all six Projects when
2 available.

3 **B. In-Service Requirements**

4 Staff recommends conditions designed to ensure that the Projects demonstrate
5 the performance for which customers may ultimately be asked to pay.

6 For the Tom Sawyer and Ringer Solar Projects, Ameren Missouri should apply
7 the solar in-service criteria described in Staff's Report before either facility is included
8 in rates.

9 For each BESS Project, Ameren Missouri should apply project-specific in-service
10 criteria requiring completion of construction and preoperational testing, satisfaction of
11 contractual operating guarantees, and demonstration of required power and energy
12 performance.

13 Most particularly, each BESS Project should be required to demonstrate at least
14 98 percent of both its Guaranteed Power Capacity and its Guaranteed Energy Capacity
15 during the same capacity test. This requirement is intended to ensure that a battery
16 facility cannot satisfy its power and energy requirements through separate tests without
17 demonstrating that it can actually sustain the required output for the required duration.

18 **C. Cost and Tax-Credit Oversight**

19 Because project costs and anticipated tax benefits materially affect the
20 economics ultimately presented to customers, Staff recommends continuing disclosure
21 and documentation requirements.

Ameren Missouri should:

1. file notice in this docket if the total cost of any Project changes by more than 15 percent from either its reported base cost or risk-adjusted cost, explaining both the cause of the change and the measures taken to mitigate it;
2. file notice stating the final federal income-tax-credit percentage, including bonus credits, expected to apply to each Project and whether Ameren Missouri will claim an Investment Tax Credit or Production Tax Credit for each Solar Project;
3. retain and produce in the rate case following each Project's in-service date the documents supporting tax-credit eligibility, Foreign Entity of Concern compliance, prevailing-wage and apprenticeship compliance, domestic-content compliance, and related third-party monitoring; and
4. file the final executed Chapter 100 agreement for the Ringer Solar Project when it becomes available.

D. Subscriber-Program and Customer-Protection Conditions

Staff recommends conditions intended to identify the purpose for which the Solar Projects are ultimately used and to prevent costs associated with subscriber programs from being shifted to customers who do not participate in them.

Ameren Missouri should:

1. file notice stating whether the Tom Sawyer and Ringer Solar Projects will be used for RES compliance, the Renewable Solutions Program, the Renewable Solutions Program–Large Load Customers, or another subscriber program;
2. if either Solar Project is assigned to a subscriber program, separately track within the applicable Federal Energy Regulatory Commission accounts all revenues, expenses, and investment associated with that program and make those records available in the next rate case; and

3. if Ameren Missouri proposes to use either Solar Project for a subscriber program, file tariff provisions designed to recover the facility's full annual revenue requirement from participating customers.

Staff Witness: Paul K. Amenthor, Amanda Arandia, Malachi Bowman, Claire M. Eubanks, PE, Donald A. Fontana, PE, Randall T. Jennings, J. Luebbert, Brodrick Niemeier, Hari K. Poudel, PhD and Seoung Joun Won, PhD

II. Application Summary

20 CSR 4240-20.045 contains the requirements for filing for CCNs for electrical production facilities. Ameren Missouri filed its application in accordance with Sections 393.170.1² and 393.190.1 RSMo, 20 CSR 4240-2.060 and 20 CSR 4240-20.045, requesting CCNs for the Castle Bluff BESS Project, the Huck Finn BESS Project, the Millcreek BESS Project, the Tom Sawyer Solar Project, the Huck Finn Solar Project, and the Quinn Switching Station. Ameren Missouri also requested a variance from the requirement in 20 CSR 4240-20.045(6)(J) so that the Company's plans for restoration of safe and adequate service can be provided closer to the time when the BESS Projects and Solar Projects will commence commercial operation, also consistent with the condition relating to this requirement adopted by the Commission in File Nos. EA-2025-0238 and EA-2025-0239. Ameren Missouri's variance request is discussed in detail later by Staff Witness Donald A. Fontana, PE.

Ameren Missouri outlines the specific requirements of 20 CSR 4240-20.045 in Sections II part E and III part D of its Application for the BESS and the Solar Projects,

² All statutory references are to the Revised Statutes of Missouri (2025), unless otherwise stated.

1 respectively. Highly Confidential Schedule DAF-r1 – Summary of Application Filing
2 Requirements contains Staff’s more detailed review and analysis.

3 Staff reviewed the filing information submitted with the CCN application for the
4 proposed projects. It should be noted that within the CCN application, permission is
5 being sought for the construction of six (6) different projects in five (5) separate locations.
6 Ameren Missouri requests that the Commission issue a CCN to construct, install, own,
7 operate, maintain, and otherwise control:

- 8 • A 95-megawatt (“MW”) battery energy storage system (“BESS”) facility (“**the**
9 **Castle Bluff BESS project**”) to be constructed at the now-retired
10 Meramec coal-fired facility, which is also the site of the Castle Bluff
11 simple cycle combustion turbine generator (“CTG”) project (currently
12 under construction), previously approved by the Commission in File No.
13 EA-2024-0237, located in St. Louis County, Missouri;
- 14 • A 200 MW BESS facility to be constructed in Audrain County, Missouri
15 (“**the Huck Finn BESS Project**”) at the site of Ameren Missouri’s Audrain
16 Energy Center;
- 17 • A 250 MW BESS facility to be constructed in Lincoln County, Missouri (“**the**
18 **Millcreek BESS Project**”):
- 19 • A new 161 kilovolt (“kV”) switching station (“**the Quinn Switching Station**
20 **project**”) in Lincoln County, Missouri to allow interconnection of the
21 Millcreek BESS project to the existing Ameren Missouri 161 kV transmission
22 line;
- 23 • Using a BTA, a 175 MW solar generation facility to be constructed in
24 Audrain County, Missouri (“**the Tom Sawyer Solar Project**”), and which is
25 adjacent to Ameren Missouri’s existing Huck Finn Solar Energy Center; and,

- Using a BTA, a 225 MW solar generation facility to be constructed in Stoddard County, Missouri (“**the Ringer Solar Project**”).

Within this report, the Tom Sawyer Solar Project and the Ringer Solar Project will be referred to as “the Solar Projects.” Collectively, the BESS Projects, the Switching Station Project, and the Solar Projects are referred to as “the Projects” in this CCN application.

Staff Witness: Brodrick Niemeier and Donald A. Fontana, PE

III. Five Tartan Criteria

A. Whether there is a need for the facilities and service

1. Need

In evaluating whether the Projects are needed, Staff considers the following questions:

- a. Is the project both important to the public convenience and desirable for the public welfare?*
- b. Or, is the project effectively a necessity because the lack of the service is such an inconvenience?*

Ameren Missouri states in its application that the Solar and BESS Projects are needed for the following reasons which Staff will comment on:

1. To help Ameren serve the recently announced 2.8 GW of new large load coming onto it’s service territory.³
2. To meet rising RES requirements due to large loads connecting on the grid.⁴

³ Application, page 28.

⁴ Application, page 28.

2. To Serve New Large Loads

When evaluating “Need” in a CCN, it is important to consider MISO accreditation values. The Midcontinent Independent System Operator (MISO) requires load serving entities within each zone⁵ to have sufficient resources to meet load and required reserves.⁶ Whether a load serving entity, such as Ameren Missouri, has sufficient resources is largely impacted by MISO’s accreditation values. These accreditation values reflect each resource’s expected availability, historical performance, and operational characteristics across each season.

For example, let’s say that MISO projects a 250 MW load so the load serving entity builds a 250 MW Solar Project. If the winter accreditation value is 5%, this facility would only count for 12.5 MW in terms of accreditation and the load serving utility would still need 237.5 MW of accredited capacity to meet MISO’s requirements. Therefore, it is important for a load serving entity to consider accreditation values, along with other generation attributes, when choosing the type of generation they choose to build to meet their capacity needs.

Ameren Missouri Witness Matt Michels states that “winter season currently drives resource needs, in part due to lower winter accreditations for gas-only resources that experience fuel supply constraints during cold weather.”⁷ Ameren Missouri expects

⁵ Ameren Missouri is in zone 5. Ameren Missouri has ownership in generation in zone 4.

⁶ Surplus resources may be shared among load serving entities with resource deficits to meet reserve requirements.

⁷ Matt Michels Direct Testimony Page 14.

1 that winter accreditation values through 2029 for BESS and Solar to be ** [REDACTED] ** and
2 ** [REDACTED] **, ⁸ respectively. However, in 2030 going forward, the winter accreditation
3 values for BESS and Solar Projects are expected to drop to ** [REDACTED] ** and ** [REDACTED] **, ⁹
4 respectively. Therefore, Solar Projects are not an effective solution for increasing
5 accredited winter capacity.

6 In Ameren Missouri's response to Staff Data Request 0075 attached as
7 Confidential Schedule MB-r1, Ameren Missouri provided an up-to-date capacity balance
8 which Staff modified to review Ameren Missouri's indicative accredited capacity position.
9 Ameren Missouri witness Robert Dixon stated that 2,800 MW of large load customers
10 have signed ESAs. In Ameren Missouri's response to Staff Data Request 0075,

11 ** [REDACTED]
12 [REDACTED] **

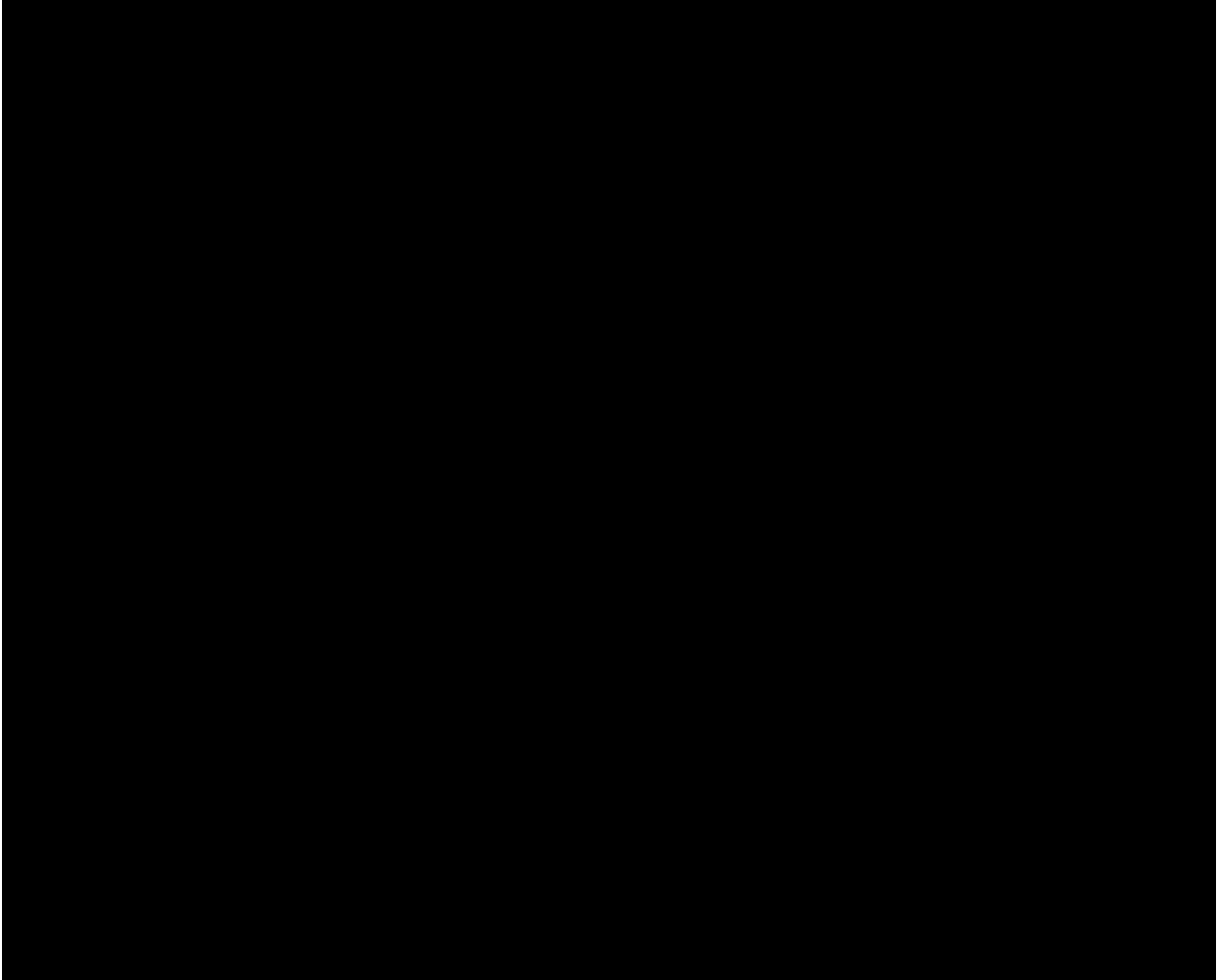
13 *continued on next page*

⁸ Staff Data Request 0075.

⁹ Staff Data Request 0075.

1 Figure 1: Capacity Position with Data Request 0075 Data Center Additions

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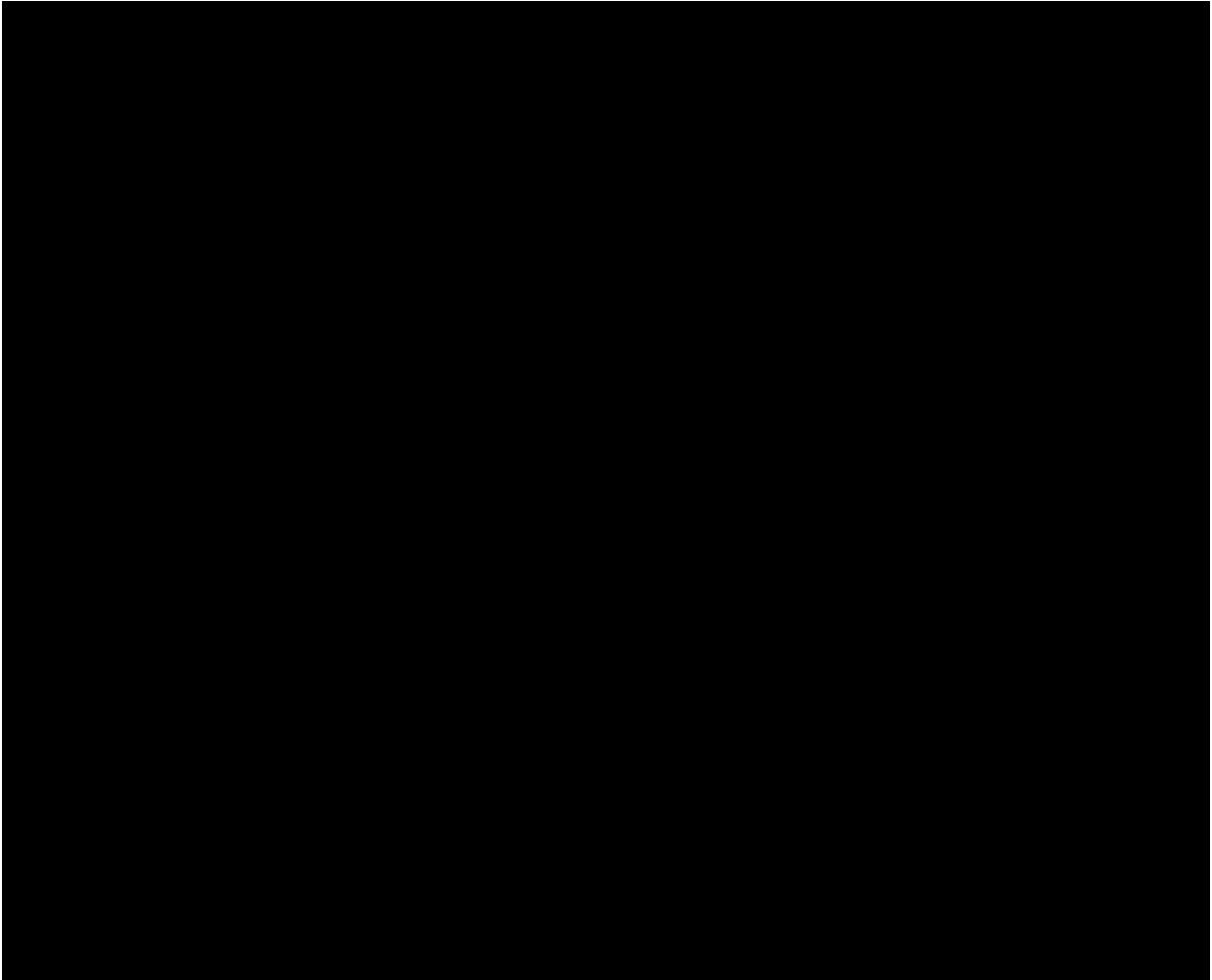
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Figure 2: Capacity Position with 3500 MW Preferred Resource Plan (PRP) Scenario

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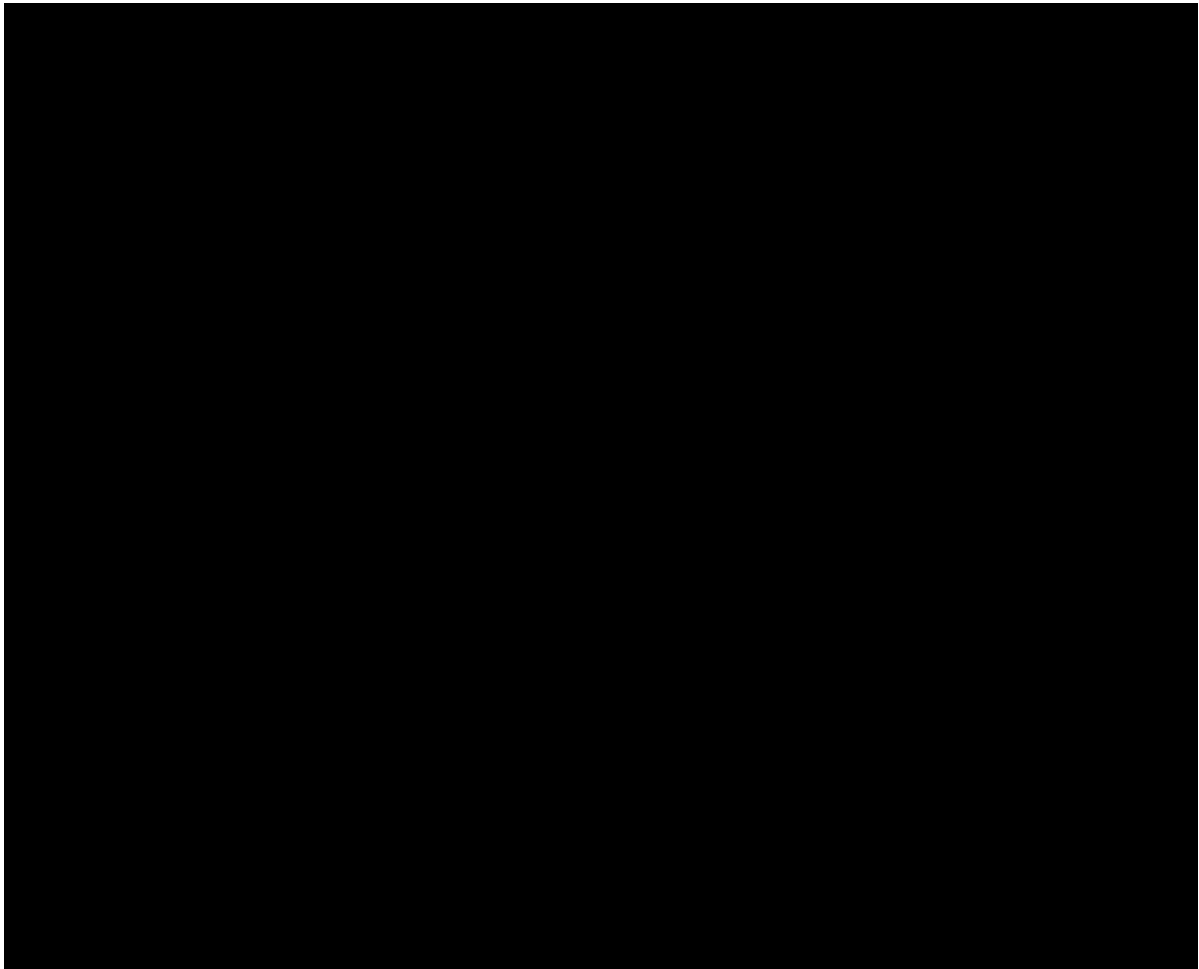
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¹⁰ DR 0075s1.



Figure 3: Capacity Position with No Large Loads Scenario

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How these large loads materialize and at what pace cannot be estimated for certain. If loads materialize as Ameren Missouri projects based on its ESA agreements as shown in Figure 1, these projects alone will not alleviate Ameren Missouri's need for

1 accredited capacity. Regardless of how these loads materialize, the Solar Projects, which
2 are shown in gold on the previous graphs, will have very little impact on increasing
3 accredited capacity due to their low accreditation values. But the BESS projects do
4 maintain high accreditation values even beyond 2030.

5 **3. RES Requirement**

6 The proposed Solar Projects are not estimated to significantly increase Ameren
7 Missouri’s accredited capacity. However, the proposed Solar Projects will provide
8 additional Renewable Energy Credits (“RECs”) for Renewable Energy Standard (“RES”)
9 Compliance which will be needed if Large Loads materialize as Ameren Missouri is
10 expecting and the large loads do not bring their own renewables.¹¹

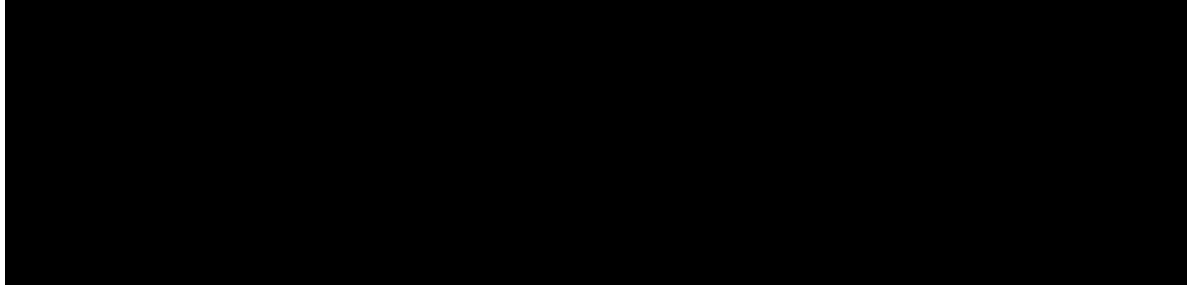
11 Ameren Missouri provided it’s load projections with and without Large Load
12 customers for the next 10 years in DR 0075 as shown below:

13 Table 1: Load projections with and without Large Loads

14 **



¹¹ Ameren expects some large loads to bring on their own renewables although it states that it is likely that not all large loads would bring on their own renewables as stated in DR 0075 attached as Schedule MB-r2.



1 **

2 In ET-2025-0184, the Commission approved a variance which would allow Ameren
3 Missouri to:

4 exclude from “total retail electric sales” the portion of qualifying
5 large load customers’ usage that is backed by sufficient renewable
6 attributes to cover the applicable Renewable Energy Standard
7 requirement for that load.¹²

8 This would allow large load customers to bring on their own renewables or RECs
9 and thus reduce Ameren’s need for RECs. But in response to Staff Data Request 0075,
10 attached as Confidential Schedule MB-r1, Ameren Missouri stated:

11 While it is likely there will be some large load customers that qualify
12 for the variance, it is also likely that not all would meet the
13 requirements of the variance, and thus there would be an increase
14 in the Missouri RES requirement due to large loads.

15 Ameren Missouri provided Staff with loads anticipated from certain large load
16 customers in Docket No. ET-2025-0184 which are expected to qualify for this variance.
17 Staff analyzed two scenarios to outline the need for these projects: (1) No large loads
18 come or all large loads bring their own renewables and (2) large loads come and do not
19 bring their own renewables. Staff acknowledges that the amount of RECs needed due to

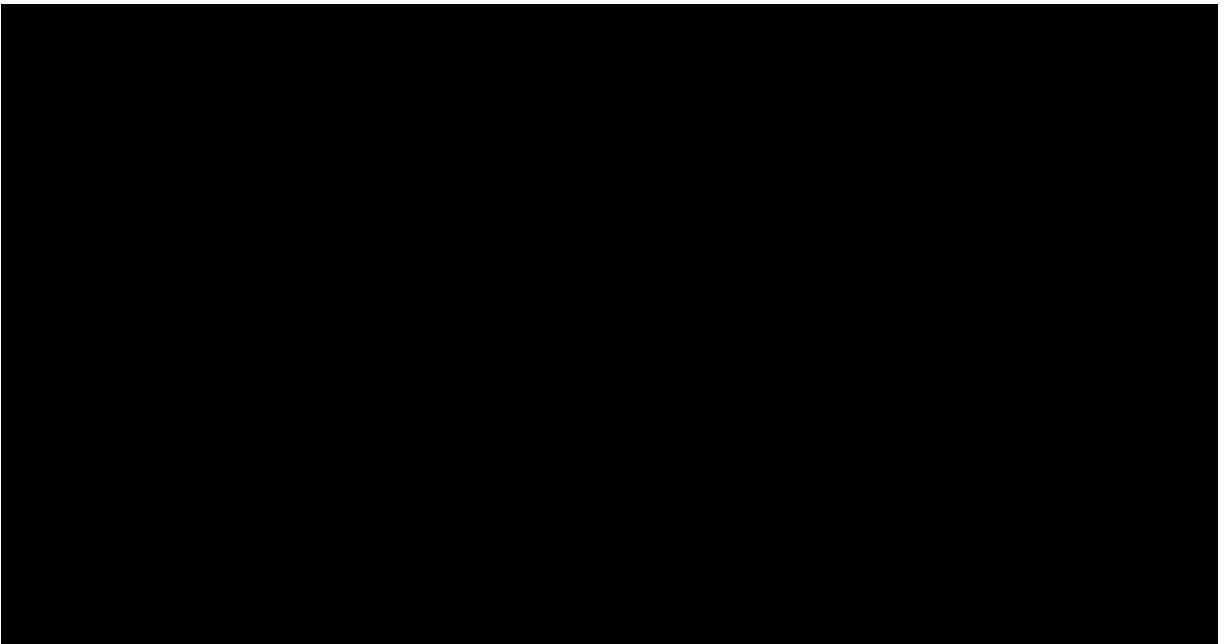
¹² ET-2025-0184, Item 139, Page 5.

large loads will vary based on whether large loads bring their own renewables and meet the requirements of the variance in ET-2025-0184.

Staff performed analysis to determine whether these projects would be needed for RES compliance without incoming Large Loads as shown below:

Figure 4: REC need with and without large loads and expected benefit from New Solar Projects.

**



**

If no large loads come into Ameren Missouri's service territory or if all of the large loads bring their own renewable generation and Ameren Missouri relied only on existing and already approved resources, Ameren Missouri would need to purchase an estimated **  **¹³ to meet the RES requirement in 2036. To put this in perspective,

¹³ If Reform is used for RES compliance. Ameren would need to purchase 1,079,049 RECs if not.

1 in 2025 Ameren Missouri purchased 1,459,646 RECs to meet its RES requirement and this
2 was done with only a 0.29% retail rate impact.^{14,15} Therefore, without Large Loads and
3 assuming REC prices remain comparable in price,¹⁶ Ameren Missouri could meet its RES
4 requirement for the next 10 years using only existing and already approved resources and
5 purchasing any additional RECs needed. The Table 2 below is a projection of RECs needed
6 each year if no large loads come into Ameren Missouri's service territory or if all of the
7 large loads bring their own renewable generation. While there are years Ameren Missouri
8 is short RECs even without new large loads, in recent years the number of RECs needed
9 for purchase has been greater than 1 million.¹⁷ In other words, relying on REC purchases
10 to comply with the standard is less concerning to Staff when the volume is less, provided
11 the cost per REC is prudent.

12 *continued on next page*

¹⁴ The maximum allowed Retail Rate Impact is 1%.

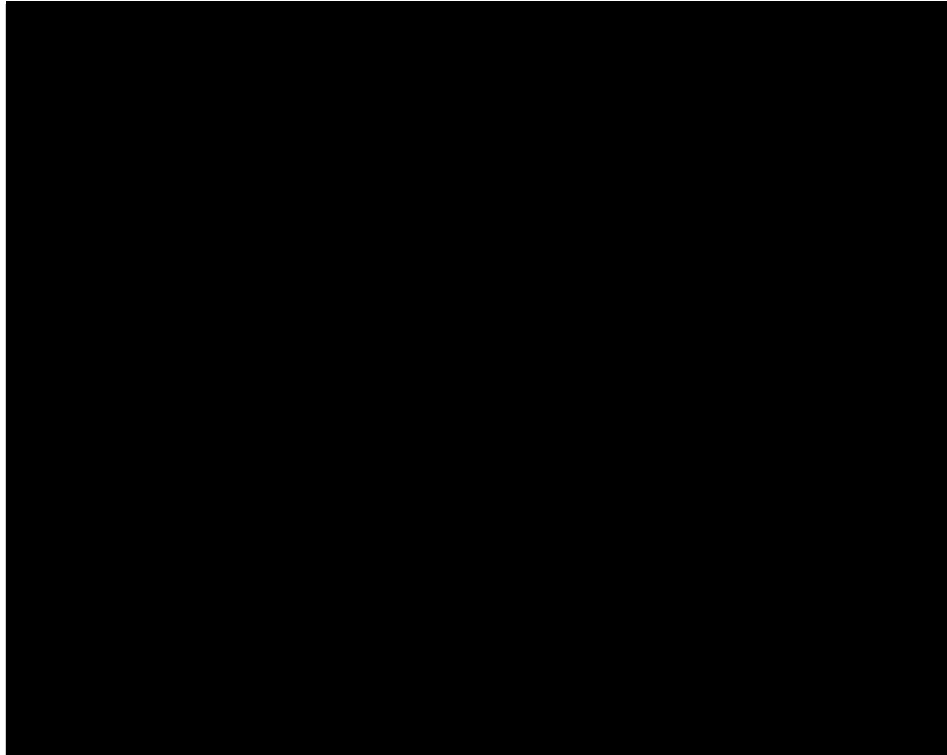
¹⁵ EO-2026-0276, Item 5, Page 11.

¹⁶ REC prices are volatile and depend on many factors such as vintage, certification, market liquidity, supply, and demand.

¹⁷ Ameren requested a variance in EE-2026-0114 stating that it could purchase ** [REDACTED] ** RECs for ** [REDACTED] ** per REC for a total of approximately ** [REDACTED] **. Ameren ended up purchasing 1,459,646 RECs for 2026 RES compliance.

Table 2: RECs Needed if no large loads come into Ameren Missouri's service territory or if all of the large loads bring their own renewable generation

**



18

**

But, if Large Loads come online as Ameren Missouri is anticipating, and these additional Solar Projects are not in-service, Staff estimates that Ameren Missouri would need to purchase an estimated ** [REDACTED] **¹⁹ in 2036 to meet its RES Requirement as shown below.²⁰

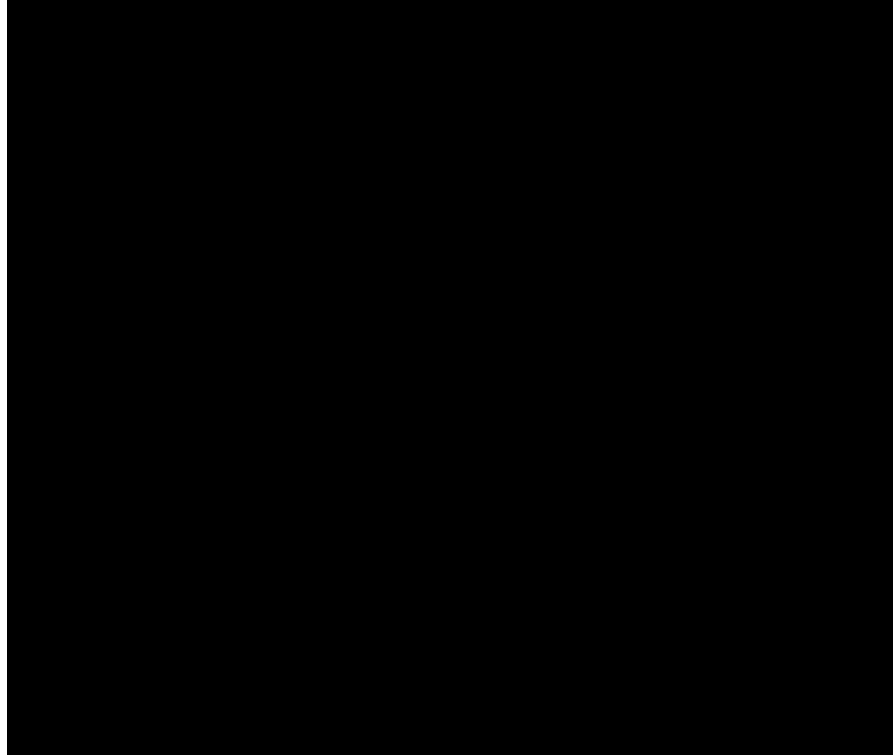
¹⁸ Table is based on values provided in Staff DR 0117 attached as Confidential Schedule MB-r3. Positive values show a need to purchase RECs while negative values show a surplus. Rollovers are not accounted for in this table.

¹⁹ If Reform is used for RES compliance. Ameren would need to purchase ** [REDACTED] ** RECs if not.

²⁰ Values are assuming the large loads do not bring their own renewables Positive values show a need to purchase RECs while negative values show a surplus. Rollovers are not accounted for in this table.

Table 3: RECs needed if Large Loads come online without new Solar Projects in service

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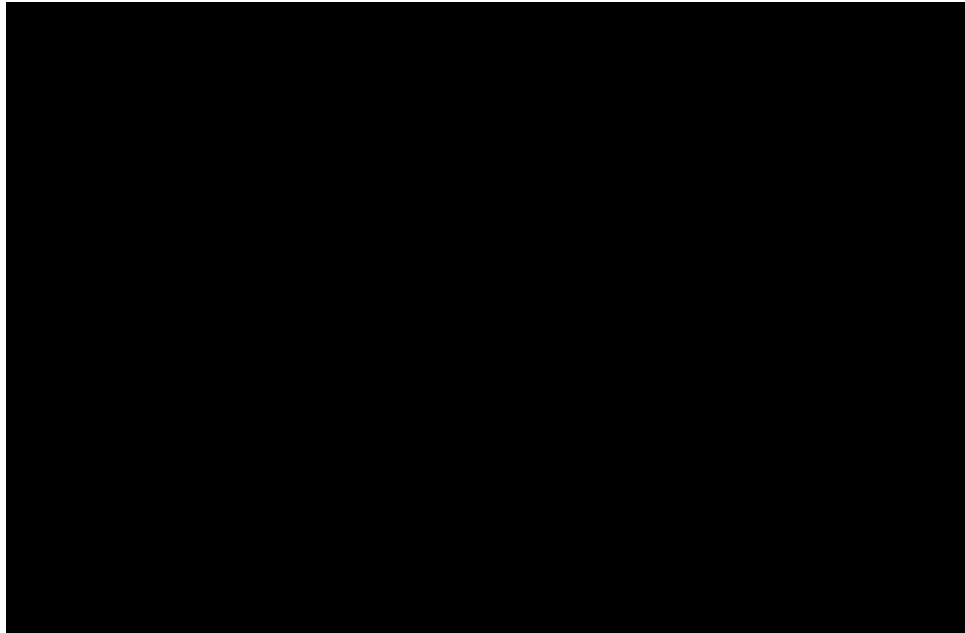
**

Alternatively, if these projects are in service, Staff estimates that Ameren Missouri would need to purchase ** [REDACTED] ** to meet RES compliance in 2036. If Large Loads materialize as Ameren Missouri estimates, and these additional Solar Projects are in service, Staff estimates that Ameren Missouri would not need to purchase more RECs than were purchased in 2025 until 2030.²¹

²¹ Values are assuming that large loads do not bring their own renewables. Positive values show a need to purchase RECs while negative values show a surplus. Rollovers are not accounted for in this table.

Table 4: RECs needed if Large Loads come online with new Solar Projects in service

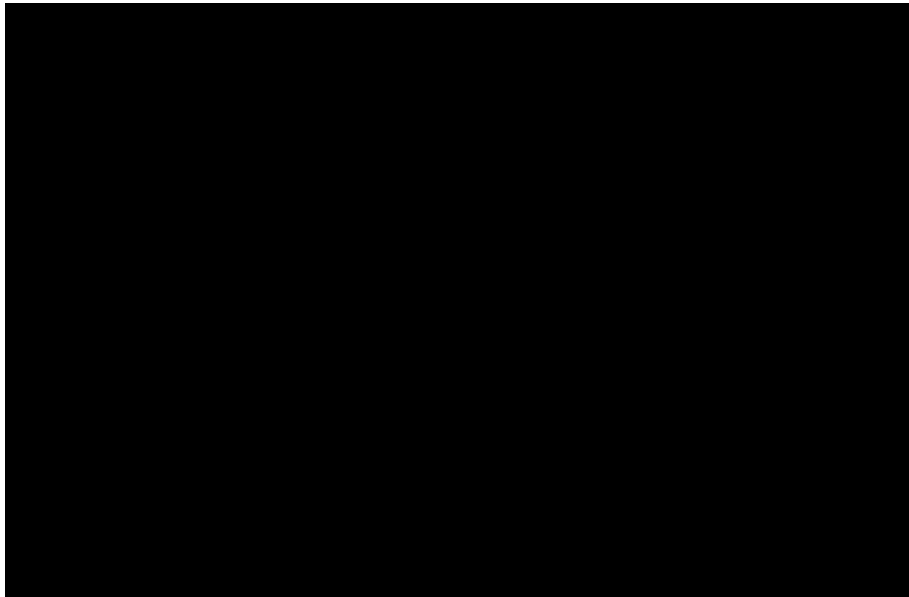
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Figure 5: RECs needed in comparison to 2025 with New Solar Projects in Service

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22

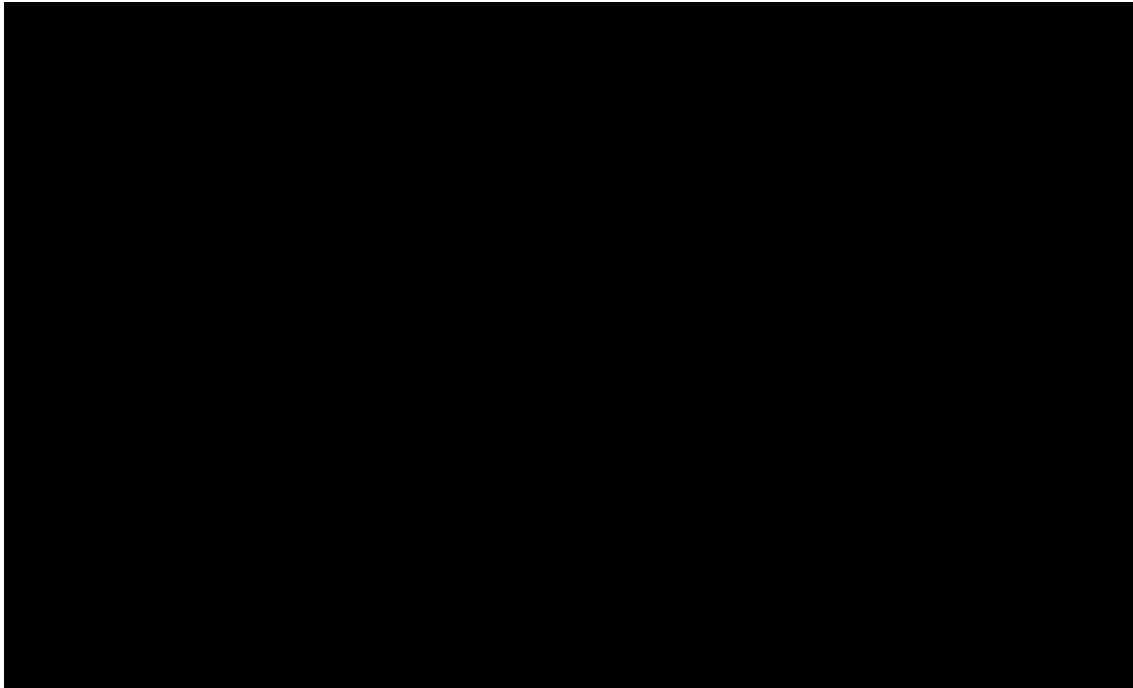
**

²² RECs needed if Large Loads Materialize, New Solar Facilities in Service, Large Loads do not bring their own renewables & REFORM is used for RES Compliance in comparison to the amount of RECs purchased in 2025

1 If these additional Solar facilities are not in service and the Large Loads come as
2 Ameren Missouri is expecting, Staff estimates that Ameren Missouri would need to
3 purchase more RECs than it did in 2025 starting 2029.

4 Figure 6: RECs needed in comparison to 2025 without New Solar Projects in Service

5 **



23

7 **

8 Although it's difficult to estimate what REC prices will be in the future, these
9 Solar Projects would reduce the amount of RECs Ameren Missouri would need to
10 purchase to be compliant with the Renewable Energy Standard if loads materialize as
11 Ameren Missouri anticipates.

²³ RECs needed if Large Loads Materialize, New Solar Facilities are not Service, Large Loads do not bring their own renewables & REFORM is used for RES Compliance in comparison to the amount of RECs purchased in 2025.

4. Senate Bill 4 Allocation of Costs

Senate bill 4 states:

7. Each electrical corporation providing electric service to more than two hundred fifty thousand customers shall develop and submit to the commission schedules to include in the electrical corporation's service tariff applicable to customers who are reasonably projected to have above an annual peak demand of one hundred megawatts or more. The schedules should reasonably ensure such customers' rates will reflect the customers' representative share of the costs incurred to serve the customers and prevent other customer classes' rates from reflecting any unjust or unreasonable costs arising from service to such customers.²⁴

Since the Solar and the BESS Projects are needed due to Ameren Missouri's anticipated Large Loads for both accredited capacity and RECs, attention should be given to ensure that customers are only paying "representative share of the costs incurred to serve" them. But Staff recommends that the Commission should not determine how the costs of this generation be allocated in this CCN but rather in future rate cases. Staff makes the same recommendation as Staff Witness Sarah L.K. Lange made in Docket No. EA-2025-0238:

[T]hat the Commission reserve for future rate case decisions the questions of the extent of PISA eligibility for any authorized power plants, and the appropriate ratemaking and cost of service allocation of any authorized power plants.²⁵

²⁴ Chapter 393.130.7, RSMo.

²⁵ EA-2025-0238, Sarah Lange Surrebuttal, Page 12.

5. Conclusion on Need

Staff concludes that if Large Loads materialize as Ameren Missouri expects, there will be a need for additional capacity and RECs. Although the facilities included in this application would not completely fulfill Ameren Missouri's accredited capacity need, the BESS projects provide additionally accredited capacity while the Solar Projects can provide additional RECs that would allow Ameren Missouri to purchase less RECs in the future. If these projects are not in service and the Large Loads do materialize without bringing their own renewables as Ameren Missouri expects, Ameren Missouri will need to purchase more RECs in the future and find other ways to increase its accredited capacity. Therefore, Staff concludes that the projects are effectively a necessity because the lack of the service is such an inconvenience.

Staff Witness: Malachi Bowman

B. Qualification of Ameren Missouri to Construct, Own, Operate, and Maintain the Projects

When assessing Ameren Missouri's ability to construct, own, and operate the Projects, Staff considered Ameren Missouri's experience and expertise and concludes Ameren Missouri is qualified to construct, own, operate, and maintain the Projects. Ameren Missouri has a long history as a public utility operating in the state of Missouri. It has been in business for over 100 years and currently serves over 1.2 million customers. It operates solar, wind, coal, gas, and hydroelectric resources with thousands of miles of transmission lines and associated substations and switching stations.

1 Additionally, Ameren Missouri was previously granted a CCN for a battery storage project
2 in EA-2025-0238 which is currently under construction.

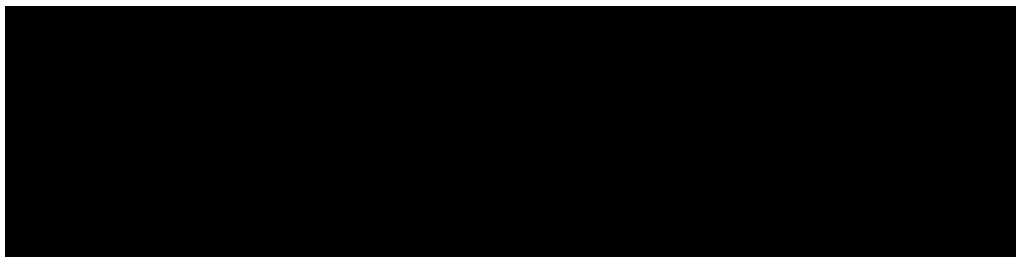
3 *Staff Witness: Amanda Arandia*

4 **C. Whether the applicant has the financial ability for the undertaking**

5 For all proposed five (5) projects in this proceeding, Ameren Missouri reported
6 the estimated total cost of approximately *** [REDACTED] *** and the estimated total
7 risk-adjusted cost of approximately of *** [REDACTED] ***.²⁶ Detailed anticipated costs
8 for three (3) BESS projects and two (2) Solar Projects are discussed in the Direct Testimony
9 of Company Witness Mitchell Lansford, Vice President and Treasurer of Ameren
10 Missouri.²⁷ The summary of estimated total costs and risk-adjusted costs for each project
11 is presented in Table 5.

12 Table 5. Estimated Total Costs and Risk-Adjusted Costs²⁸

13 ***



14 ***

15
16 Ameren Missouri plans to fund the Projects through a combination of operating cash flow,
17 short-term and long-term debt, and cash contributed as equity from its parent company,

²⁶ EA-2026-0183 Staff's Data Request 0008.

²⁷ EA-2026-0183 Pages 3-5, Lansford's Direct Testimony.

²⁸ EA-2026-0183 Staff's Data Request 0008.

1 Ameren Corp.²⁹ The Castle Bluff BESS project qualifies for an additional 10% Energy
2 Community Tax Credit Bonus under the Inflation Reduction Act (“IRA”) that investment
3 tax credits to help support initial funding.³⁰ Ameren Missouri has adequate short-term
4 liquidity and access to incremental short-term liquidity as needed, such as the
5 \$1.9 billion Missouri credit facility scheduled to mature in December 2030, with a current
6 sublimit of \$1.6 billion and a money pool arrangement among Ameren Corp with
7 \$1.6 billion limit, as authorized by the Federal Energy Regulatory Commission (“FERC”).³¹
8 In addition, To demonstrate its financial capability to develop the Projects, Ameren
9 Missouri stated that its existing rate base exceeds \$13 billion, its planned capital
10 additions over the coming five years (not including the Projects) also exceed \$16 billion,
11 and it has sufficient access to capital markets based on, among other things, its stable
12 investment issuer credit ratings from Moody’s and Standard & Poor’s (S&P).³²

13 Staff conducted a pro forma analysis to assess the financial impact of the Projects
14 on Ameren Missouri by examining its financial statements and key financial ratios.
15 The pro forma adjustments reflect the Ameren Missouri and Ameren Corp. Transactions
16 and the associated financial impact of the Projects. These adjustments are based on
17 estimated project costs and are not necessarily indicative of the results that would have
18 been achieved had the Transactions occurred as of March 31, 2026, for balance sheet

²⁹ EA-2026-0183 Page 6, lines 3-6, Lansford’s Direct Testimony.

³⁰ EA-2026-0183 Page 14, lines 21-22, Wibbenmeyer’s Direct Testimony.

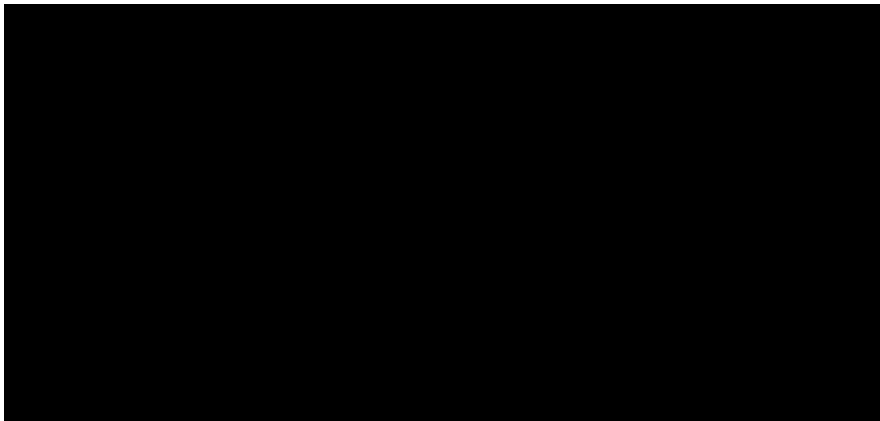
³¹ EA-2026-0183 Page 7, 6-18, Lansford’s Direct Testimony.

³² EA-2026-0183 Page 10, lines 10-14, Wills’s Direct Testimony.

1 purposes. In developing the pro forma adjustments, Staff focused on the financial impact
2 on both Ameren Missouri and Ameren Corp. under a risk-adjusted scenario for the
3 Projects. Under these assumptions, the pro forma analysis of Ameren Missouri's and
4 Ameren Corp.'s capital structure is presented in Table 6. As shown in Table below, the pro
5 forma effect on both Ameren Missouri's and Ameren Corp.'s capital structure is not
6 materially changed in terms of financial risk, with less than a 1% change in the equity ratio.

7 Table 6. Pro Forma Analysis of Capital Structure³³

8 **



11 **

12 Considering Ameren Missouri's financial capacity, Staff finds that the Applicant has the
13 financial ability to provide the proposed Projects. Ameren Missouri projects capital
14 expenditures of approximately up to \$22.18 billion during the 2026–2030 period.³⁴
15 In addition, Ameren Missouri is a wholly owned subsidiary of Ameren Corp., which plans
16 to invest more than \$70 billion in capital expenditures over the same five-year period.³⁵

³³ EA-2026-0183 Staff Data Request 0003.

³⁴ EA-2026-0183 Staff Data Request 0005.

³⁵ Ameren Corp., First Quarter 2026 Earnings Conference Call, presented May 6, 2026.

1 According to S&P, Ameren Missouri is expected to account for approximately 60% of
2 Ameren Corp.'s planned capital spending and generate approximately \$2 billion in annual
3 funds from operations (FFO).³⁶ These factors indicate that Ameren Missouri has
4 substantial financial resources and support from its parent company to fund its planned
5 investments of the Projects.

6 S&P and Moody's rated both Ameren Missouri and Ameren Corp. as investment
7 grade. S&P has assigned both Ameren Missouri and Ameren Corp. a credit rating of BBB+,
8 while Moody's has assigned both entities a Baa1 rating with a stable outlook, despite their
9 planned substantial capital expenditures.³⁷ The expected total cost of the Projects
10 represents less than 10% of Ameren Missouri's projected capital expenditures for the
11 2026–2030 period.³⁸ Furthermore, Staff found no material adverse change in Ameren
12 Missouri's financial risk profile resulting from the Projects after evaluating their expected
13 financial impact.³⁹ Considering the estimated project costs, the limited financial impact
14 relative to Ameren Missouri's planned capital investment program, and its overall
15 financial strength, it is reasonable to conclude that Ameren Missouri has the financial
16 ability to construct, operate, and maintain the Projects.

17 *Staff Witness: Seoung Joun Won, PhD*

³⁶ Union Electric Co. (Ameren Missouri), RatingsDirect, S&P Global Ratings, Published April 17, 2026.

³⁷ S&P Capital IQ Pro. retrieved July 9, 2026.

³⁸ Staff Data Request 0005.

³⁹ Staff Data Requests 0001, 0002 and 0003.

D. Whether the proposal is economically feasible

Based on the review of Ameren Missouri’s application and supporting documents, Staff concludes that two Solar Projects and three BESS Projects justify the cost because of the need discussed by Staff Witness Malachi Bowman, despite the capital cost benchmarking discrepancy and the winter season accreditation limitations associated with Solar Projects. This section on economic feasibility is divided into several sections as follows:

- Staff Witness Hari K. Poudel, PhD introduces the concept of economic feasibility, discusses its definition, and provides an overview of IRP analysis, capital costs, reliability and accreditation, and Request for Proposals (“RFP”).
- Staff Witness Randall T. Jennings discusses cost allocation and rate impacts.

Staff concludes that the two Solar Projects, three BESS Projects, and an Electrical Switching Station are of sufficient importance to warrant the expense of making it. However, Staff presents several recommended conditions to address its concerns to be applied to future CCN applications.

1. Introduction

The Cambridge Dictionary defines “economic feasibility” as “the degree to which the economic advantages of something to be made, done, or achieved are greater than

1 the economic costs.”⁴⁰ Feasibility studies should assess whether a proposed Project or
2 solution is financially viable and cost-effective with respect to given alternative solutions.

3 When considering the economic feasibility of a Project, Staff recommends that the
4 Commission assess the utility’s decision to address an identified generation need and the
5 proposed resources to satisfy that need as discussed in Section 1, “Need.” In practice,
6 feasibility studies are intended to determine whether a particular Project or solution is
7 financially viable and cost-effective, especially when measured against other available
8 alternative solutions.

9 As stated in Section 1, “Need,” Staff concludes that additional capacity is
10 effectively a necessity because the lack of service is such an inconvenience. Based on
11 the conclusion of need, Staff has reviewed the options for meeting that capacity need to
12 develop its position in this case. The primary need identified in the application for
13 constructing the Project is to support Ameren Missouri's winter capacity needs and to
14 provide additional Renewable Energy Credits (“RECs”) for Renewable Energy Standard
15 (RES) Compliance.

16 The questions that the Commission needs to answer in a given Certificate of
17 Convenience and Necessity (“CCN”) case, and indeed in the traditional Tartan Factors,
18 interdepend on the answers and evidence of other factors. It is impossible to discuss a
19 Project’s economic feasibility without looking at what need the utility purports to have and
20 the suitability of the Project to meet that need. For example, even if a particular Solar

⁴⁰ <https://dictionary.cambridge.org/us/dictionary/english/economic-feasibility> (21NOV2024).

1 Project may be the most economically attractive unit on a per kWh basis, the Solar unit is
2 not the best alternative resource if the need is for winter capacity. The potential solutions
3 to meet the need are also largely dependent on the unique circumstances of the
4 application, the utility, and the current operating and regulatory environment.

5 For instance, a *necessary* generating facility may be more usefully evaluated in
6 terms of: is the Project presented in the application an economically feasible way of
7 meeting the identified need and promoting the public interest? However, a generating
8 plant premised on its inclusion in integrated resource planning results based on generic
9 resources, or on its value to simply sell more energy, should receive stricter scrutiny on
10 questions of need and economic feasibility to determine if this Project is so *convenient* it
11 puts customers in a better position than if they were not paying for the plant at all.

12 Staff finds the following questions to be appropriate in making their
13 recommendation regarding economic feasibility:

- 14 a. Is the Project of sufficient importance to warrant the expense
15 of making it?
- 16 b. Or, is the Project of such an improvement as to justify or
17 warrant the expense of making the improvement?

18 Ameren Missouri relied on its IRP analysis to demonstrate economic feasibility.
19 However, Staff notes that the IRP lacks Project-specific economic analysis making it
20 insufficient on its own as justification for the economic feasibility of the Projects in this
21 case. As such, Staff has identified several conditions to apply to future CCN applications,
22 should the Commission approve the proposed Solar Projects.

Ameren Missouri discusses economic feasibility of the BESS Projects in paragraph 27 and the economic feasibility of the Solar Projects in paragraph 59 of its Application. Several of the points confuse other Tarran criteria with economic feasibility or rely on the total Net Present Value of Revenue Requirement (“NPVRR”) of alternative resource plans in the Ameren Missouri IRP analysis as the fundamental basis for justification of this Project. However, the IRP analysis should not be conflated as a review of the economic feasibility of individual generating assets.

2. IRP Analysis

An IRP is a long-term planning document that utilities use to forecast future resource requirements and determine the preferred mix of resources to meet those needs. Ameren Missouri selected its Preferred Resource Plan (“PRP”) to account for changes in energy demand and to reflect the various costs and risks associated with those changes in order to serve its customers. Ameren Missouri’s 2025 PRP⁴¹ reflects significant changes from its prior plans, primarily driven by expectations of new large customer loads.

Commission Rule 20 CSR 4240 Chapter 22 – Electric Utility Resource Planning requires the electric utilities to conduct integrated resource planning no less than triennially. Chapter 22 includes minimum standards to govern the scope of the IRP process. However, each utility retains an immense amount of discretion in the planning process, including in identifying nearly all of the assumptions that will be included in the

⁴¹ EO-2025-0235 Filed on February 28, 2025.

1 utility's analyses based on the opinion of utility management. These assumptions drive
2 the outcomes of the various metrics reported within the IRP. Assumptions within an IRP
3 include, but are not limited to:

- 4 • load growth;
- 5 • load shape;
- 6 • the capital costs of various resource types;
- 7 • timing and size of resource additions;
- 8 • timing of resource retirements;
- 9 • tax benefits;
- 10 • fuel prices;
- 11 • energy prices;
- 12 • capacity prices;
- 13 • operations and maintenance expense;
- 14 • the capital cost of environmental compliance upgrades;
- 15 • costs associated with regulatory requirements; and
- 16 • depreciation rates including net salvage assumptions.

17 Many of the assumptions are variable by resource type, scenario, and year within
18 the planning horizon.⁴² Utilities also have discretion for planning objectives utilized to
19 rank alternative resource plans. While the IRP includes checks on process
20 implementation, the assumptions and planning parameters are entirely subject to utility
21 discretion.

⁴² The IRP planning horizon includes a period of time of at least twenty years.

Variations within the assumptions included in the modeling of each of the alternative resource plans makes direct comparisons of plans difficult. For example, two plans could have identical resource additions and retirements in early years but include differences in strategy in the later years of the planning horizon. Those plans will have different NPVRRs.⁴³ There is no requirement that the alternative plans considered are reasonable permutations of one another to enable a reasonable comparison of various fleet configurations.

Ameren Missouri selected a new preferred resource plan⁴⁴ featuring generic Solar and BESS Projects as the lowest NPVRR plan, of the plans Ameren Missouri chose to review, based upon the assumptions and constraints applied to its IRP analysis. That is the sum and extent of what its IRP analysis demonstrates with regard to the generic Solar and BESS Projects. However, generic assumptions used in the IRP analysis could materially influence the estimated net present value and overall economic justification of the Projects. For example, revenue requirements and customer rate impacts may be overstated or understated. Those assumptions should therefore be supported by evidence obtained from Project-specific economic modeling at the time of a CCN request.

⁴³ Changing the timing of benefits or costs can have a large impact on the NPVRR results even if it is not indicative of the impact to ratepayers.

⁴⁴ 20 CSR 4240-22.020 (46): Preferred resource plan means the resource plan that is contained in the resource acquisition strategy that has most recently been adopted by the utility decision-maker(s) for implementation by the electric utility.

Staff presents several recommended conditions to address its concerns to be applied to future CCN applications.

3. Solar Capital Costs

In the paragraph 59 of its Application, Ameren Missouri states that “The Solar Projects are economically feasible as demonstrated by the substantially lower net present value of revenue requirement of the Company’s 2025 PRP as compared to the alternative.”

Ameren Missouri’s PRP⁴⁵ includes the addition of 2,200 MW of Solar generation by 2030, including two Solar Projects in this application.⁴⁶ The 400 MW of new Solar generation that the Ameren Missouri seeks authorization for in this filing represents less than 19% of the 2,200 MW additional new renewable generation proposed to be installed by 2030.⁴⁷ This represents an acceleration of Solar generation additions from that planned in the Company’s 2023 IRP preferred plan. Table 7 below presents a summary of the two Solar Projects, including Project’s size (MW-AC) and base and adjusted capital cost expenditure estimates (“CapEx”).

continued on next page

⁴⁵ EO-2026-0088.

⁴⁶ EA-2026-0183 Michels Direct Page 7 lines 1-8.

⁴⁷ EA-2026-0183 CCN Application Page 30 Paragraph 57.

Table 7. Summary of Ameren Missouri's Solar Projects⁴⁸



49, 50

The estimated base capital cost of the Projects are *** [REDACTED] *** and
*** [REDACTED] *** for Tom Sawyer Solar Project and Ringer Solar Project,⁵¹ respectively.
The Commission approved three Ameren Missouri Solar Projects in Case No.
EA-2023-0286,⁵² all of which had lower \$/kW when compared to the capital cost
proposed in the current CCN application. Ameren Missouri's Solar Overnight Capex
is *** [REDACTED] *** in its 2023 IRP and *** [REDACTED] *** in its 2025 PRP.⁵³ This cost
does not include Allowance for Funds Used During Construction ("AFUDC").⁵⁴
Ameren Missouri expects that "on average the installed cost of Solar will continue to

⁴⁸ EA-2026-0183 Wibbenmeyer Direct Page 7 lines 1-8.

⁴⁹ Staff DR 0079 This includes *** [REDACTED] ***
for Tom Sawyer Solar Project.

⁵⁰ Staff DR 0079 This includes *** [REDACTED] ***
[REDACTED] *** for Ringer Solar Project.

⁵¹ EA-2026-0183 Wibbenmeyer Direct Page 28 Table 4. Summary of the Solar Projects.

⁵² EA-2023-0286 Ameren Missouri's Workpapers supporting Tables 1 & 2 were provided to Staff on June 21, 2023 and these workpapers were named as follows: (1) Invenergy Split Rail ITC_Highly Confidential; (2) Savion Cass County ITC_Highly Confidential; (3) Vandalia Solar ITC_Highly Confidential; (4) Bowling Green Solar ITC_Highly Confidential.

⁵³ Base Cost Scenario.

⁵⁴ EO-2024-0020 2023 IRP Chapter 6. New Supply-Side Resources Table 6.1, Page 7. The Project Cost includes Owner's Cost, Excluding AFUDC (\$/kW).

1 decline in real terms, and therefore is using a declining curve informed by market data
2 and the National Renewable Energy Labs (“NREL”) 2022 Annual Technology Baseline
3 (“ATB”) data.”⁵⁵

4 Ameren Missouri utilized NREL’s ATB assumptions to inform the cost of the
5 renewable resources in its IRP. The ATB provides cost and performance data for
6 electricity-generating technologies, both at present and growth projections through 2050.
7 ATB’s three metrics are capital expenditure (“CapEx”), operation and maintenance (O&M)
8 costs, and capacity factor. Ameren Missouri presented the Solar Project costs using the
9 most recent ATB assumptions.

10 Figure 7 presents the NREL ATB Projected CapEx for Utility-Scale Photovoltaic
11 resources under the Moderate Cost Scenario.⁵⁶ CapEx is the amount of money that a
12 Company spends on Solar generation at the utility-scale. The CapEx includes a series of
13 cost items, such as electrical infrastructure and interconnection cost, transmission
14 substation upgrades, generation equipment and infrastructure, installation, labor and
15 materials, engineering, environmental studies and permitting, insurance, legal fees,
16 property taxes, fencing, buildings for operation and maintenance, and so on. The
17 horizontal axis represents the commercial operation year, while the vertical axis
18 represents the total installed capital cost expressed in dollars per kilowatt (\$/kW). The
19 Figure 7 demonstrates a downward cost trajectory over time, reflecting NREL’S

⁵⁵ EO-2024-0020 2023 IRP Chapter 6. New Supply-Side Resources Table 6.1, Page 7. Figure 6.5 Base Solar Overnight Capital Cost Assumption (2023\$).

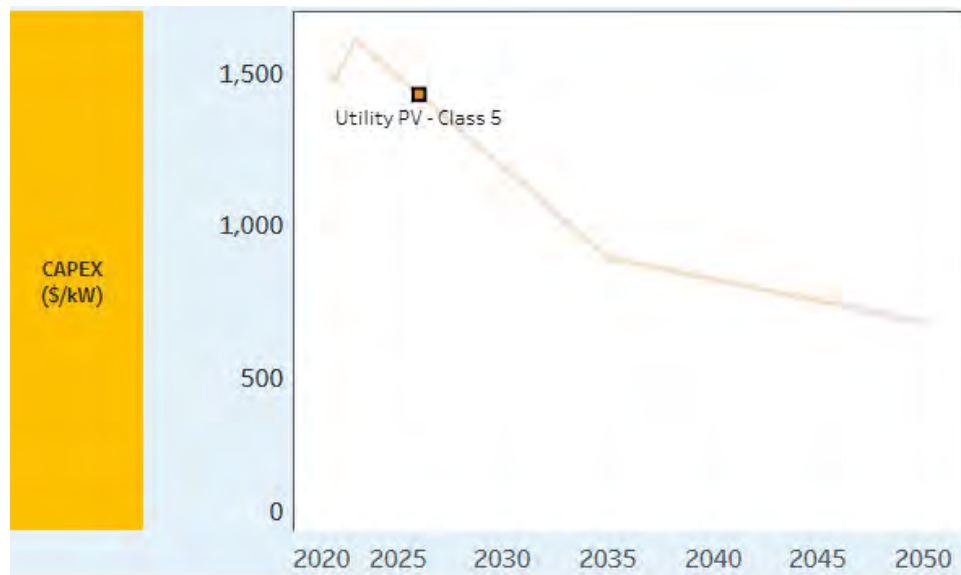
⁵⁶ https://atb.nrel.gov/electricity/2024b/utility-scale_pv.

1 expectation that technological improvements, manufacturing efficiencies, supply chain
2 optimization, and economies of scale will continue to reduce the installed cost of utility-
3 scale Solar Projects. Under the Moderate Cost Scenario, CapEx declines from
4 approximately \$1,500/kW in 2020 to less than \$700/kW by 2050. The highlighted point in
5 Figure 3 corresponds to the Ameren Missouri's proposed Solar Project CapEx. Staff
6 selected this benchmark because Ameren Missouri states that it also relied on the NREL
7 Moderate Cost assumption in developing its Project cost estimates.⁵⁷

8 Staff emphasizes that Figure 7 is not intended to establish the actual cost of
9 Ameren Missouri's proposed Project. Rather, it provides an independent industry
10 standard against which the Company's proposed capital costs can be evaluated. If the
11 Company's proposed CapEx materially exceeds the NREL benchmark, Staff believes the
12 Company should demonstrate that the variance is attributable to identifiable Project-
13 specific factors, such as interconnection requirement, transmission upgrades, site
14 conditions, labor market constraints, permitting requirements, or other cost drivers. It
15 allows the Commission to compare Ameren Missouri's proposed investment against an
16 independent, nationally recognized cost forecast that the Company itself identified as the
17 basis for its Solar Project cost.

⁵⁷ EA-2023-0286 Michels Direct Testimony Schedule MM D2, p. 12.

Figure 7: Solar Project CapEx (\$/kW) generated by Staff using NREL assumptions⁵⁸



Ameren Missouri's assumed Solar Project costs for the Tom Sawyer and Ringer Solar Projects exceed industry benchmarks and NREL estimates, suggesting a divergence from the observed trends of decline in Solar costs. Relying on generic cost assumptions in the IRP analysis that Ameren Missouri provided in support of its application might not reflect factors that could impact the outcome of the IRP's NPVRR analysis. Ameren Missouri's reliance on generic assumptions in its IRP does not adequately replace the need for Project-specific performance Projections or thorough risk assessments. The Solar Projects are the lowest cost resource according to the RFP responses received by Ameren Missouri and are expected to meet the requirement for increased renewable energy requirements anticipated in the future because of large load customers who do not bring their own renewables.⁵⁹

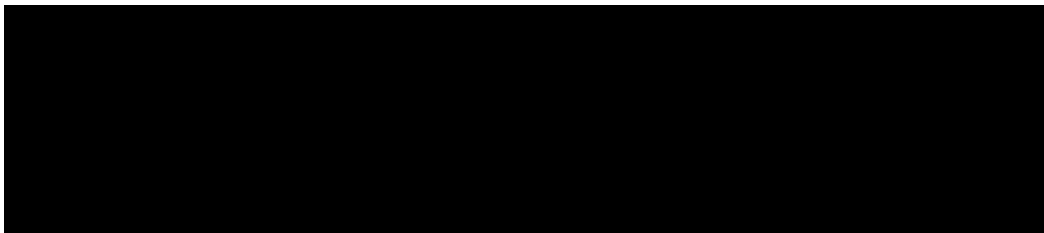
⁵⁸ https://atb.nrel.gov/electricity/2024b/utility-scale_pv

⁵⁹ ET-2025-0184 Order Regarding Ameren Missouri's Request for Approval of a Large Load Rate Plan and Associated Variance.

4. BESS Capital Costs

In paragraph 27 of its Application, Ameren Missouri states that “The BESS Projects are part of the Company's 2025 PRP, which is demonstrated to meet the Company's needs at a lower net present value of revenue requirements ("NPVRR") than alternatives to doing so.” According to Ameren Missouri witness Scott Wibbenmeyer, the estimated base capital costs of the BESS Projects are *** [REDACTED] ***, *** [REDACTED] ***, and *** [REDACTED] *** for the Castle Bluff BESS Project, the Millcreek BESS Project, and the Huck Finn BESS Project, respectively (Table 8).⁶⁰ In contrast, the generic 4-hour duration battery storage Project cost is *** [REDACTED] *** in the Company’s 2023 IRP.⁶¹

Table 8. Summary of Ameren Missouri’s BESS Projects



62, 63, 64

⁶⁰ EA-2026-0183 Wibbenmeyer DirectPage 23 Table 3.

⁶¹ EO-2024-0020 2023 IRP Chapter 6. New Supply-Side Resources Table 6.3, Page 20. The Project Cost includes Owner’s Cost, Excluding AFUDC (\$/kW).

⁶² Staff DR 0079. HC The base cost includes *** [REDACTED]

[REDACTED]. ***

⁶³ Staff DR 0079. HC The base cost includes *** [REDACTED]

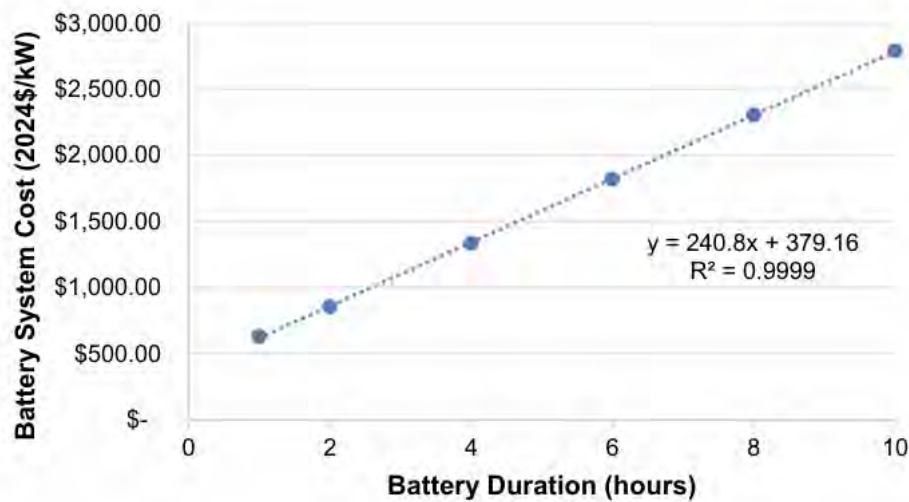
[REDACTED]. ***

⁶⁴ Staff DR 0079. HC The base cost includes *** [REDACTED]

[REDACTED]. ***

Ameren Missouri expects that on average the cost of batteries will continue to decline and therefore has assumed a declining cost curve using Roland Berger and NREL data.⁶⁵ Similarly, NREL's cost projections for the utility-scale battery storage study with a focus on a 4-hour duration BESS are most closely aligned with the Ameren Missouri's cost estimates.

Figure 8: Battery System Cost in 2024⁶⁶



As for the above Figure 8, the 4-hour duration battery system cost was approximately \$1,500/kW.⁶⁷ The proposed BESS Projects in this application have capital cost estimates that are more closely aligned with recent IRP Projections and the industry standard. However, many factors might influence how BESS costs evolve going forward,

⁶⁵ EO-2024-0020 2023 IRP Chapter 6. New Supply-Side Resources Table 6.3 , Page 19.

⁶⁶ <https://www.osti.gov/servlets/purl/2583471>.

⁶⁷ <https://www.osti.gov/servlets/purl/2583471>.

1 including market demand, supply chain expansions or constraints, material costs and
2 their availability.

3 **5. BESS Accredited Capacity**

4 Ameren Missouri witness Meyer represents that MISO's 2024 Regional Resource
5 Assessment ("RRA") projects the 2030 Direct Loss of Load ("DLOL") seasonal
6 accreditation values for four-hour batteries to be 96.1%, 99.8%, 79.5%, and 97.3%,
7 respective of seasons (from Summer – Spring).⁶⁸

8 On page 19 Lines 1-2 of Ameren Missouri witness Michels's direct testimony, he
9 states, "[a]s more BESS resources are added, the incremental capacity benefit,
10 expressed as effective load carrying capability ("ELCC") declines." On page 18 Lines 8-10,
11 Ameren Missouri Witness Michels states that the BESS provides capacity value at
12 essentially its full rated output up to 500 MW on Ameren Missouri's system, equal to 95%
13 of rated output for BESS.⁶⁹ Based on the MISO 2024 RRA presentation, the seasonal
14 accreditation results have significant implications for evaluating Solar and BESS Projects.
15 MISO's RRA presentation provides some important conclusions:⁷⁰

- 16 • Wind and Solar account for most future installed capacity and energy, but
17 not most accredited capacity.
- 18 • Reliability risk shifts from summer afternoons to winter mornings, reducing
19 the contribution of Solar and short-duration batteries.

⁶⁸ EA-2026-0183 Meyer Direct Figure 2 Lines 2-4 Page 7.

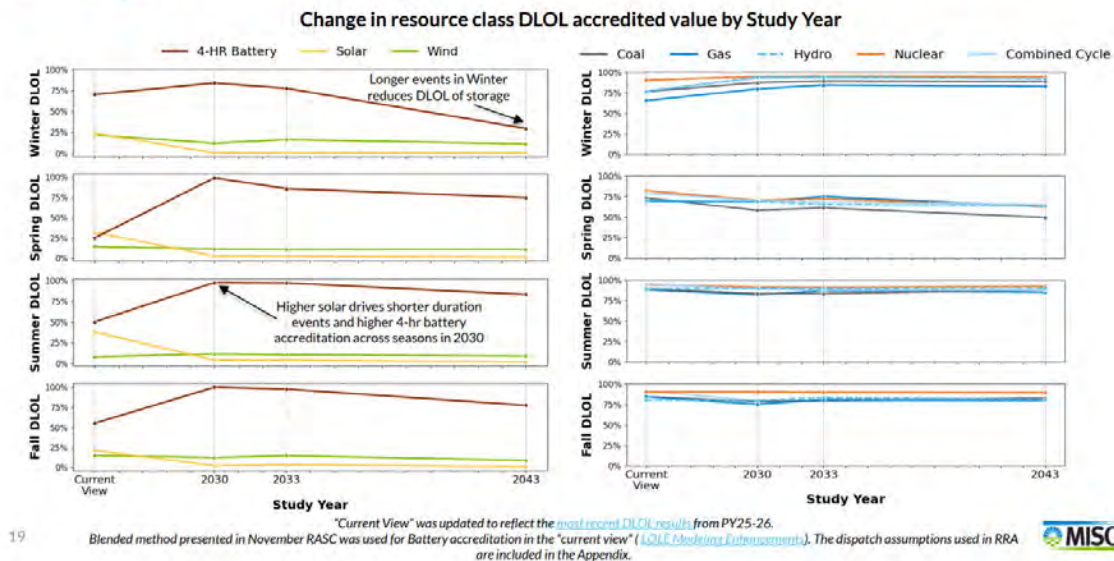
⁶⁹ EA-2026-0183 Michels Direct Lines 8-10 Page 18.

⁷⁰ <https://cdn.misoenergy.org/20241218%20RRA%20Workshop%20Presentation667199.pdf>.

Battery accreditation declines as winter reliability events become longer.⁷¹ Figure 9 below demonstrates that the extended winter reliability events reduce the ability of battery energy storage systems to mitigate DLOL because the battery's stored energy is finite. As event duration exceeds the battery's discharge capability, the battery's reliability contribution declines unless adequate opportunities for recharging exist. Therefore, evaluations of BESS should include prolonged winter stress scenarios to ensure that the modeled reliability benefits are not overstated.

Figure 9: MISO accreditation value⁷²

DLOL accreditation of resource classes reflects availability during loss-of-load and low-margin hours as the fleet evolves



If a utility models only a 4-hour BESS using generic assumptions without evaluating longer durations, the analysis may not identify the most cost-

⁷¹ <https://cdn.misoenergy.org/20241218%20RRA%20Workshop%20Presentation667199.pdf>.

⁷² <https://cdn.misoenergy.org/20241218%20RRA%20Workshop%20Presentation667199.pdf>.

1 effective portfolio. Given the capacity needed in the winter season, the 8-hour BESS
2 could be economically effective. In response to Staff Data Request 0094, attached as
3 Highly Confidential Schedule HKP-r1, Ameren Missouri states that “the winter
4 accreditations are 2-4 percentage points higher for 8-hour storage than for 4-hour
5 storage, depending on the accreditation approach used. Winter is currently the primary
6 driver of the Company's need for capacity.”

7 Therefore, Ameren Missouri should evaluate alternative storage durations,
8 including 8-hour BESS, and to demonstrate that the proposed configuration provides the
9 optimal balance of cost, reliability, and operational flexibility under a reasonable range of
10 planning scenarios. The comparative analysis between 4-hour BESS and 8-hour BESS
11 allows the Commission to determine whether the proposed BESS duration is justified
12 based on evidence rather than providing a single 4-hour BESS resource option.

13 In conclusion, BESS provides significant value through its flexibility to meet winter
14 peak energy needs. Evidence from the MISO demonstrates that BESS can contribute
15 accredited capacity during peak hours which Solar alone cannot reliably provide.
16 However, Staff recommends Ameren Missouri consider longer duration storage in its first
17 IRP filed per 393.1900 RSMo.

18 **6. Request For Proposal Scoring**

19 Typically, Staff reviews key details of the request for proposal (“RFP”) process used
20 by electrical corporations as part of CCN cases for new generation. Staff reviewed
21 documents supplied by Ameren Missouri via its responses to Staff DRs 27, 32, 35, 38, 39,
22 and 40 for the Solar and the BESS Projects. Additionally, Staff also reviewed documents

1 supplied by Ameren Missouri via its responses to Staff DRs 11, 12, 14, 15, 16, 40, 41,
2 and 42. In this case, Ameren Missouri has used an RFP process to pursue a potential
3 primary contractor for the Project. In response to Staff Data Request 0027, attached as
4 Schedule HKP-r2, Ameren Missouri states that, “Specifically, that the resources are
5 included in a preferred resource plan that was selected through an IRP process with a
6 primary criterion of minimizing the net present value of revenue requirement, and that the
7 specific resources relied upon a competitive RFP and/or other well-established
8 procurement practices and policies designed to ensure that the Projects are built at a
9 competitive market-based cost given the need the Project is designed to meet and the
10 timing of when those terms must be met.” The statement assumes that including
11 resources in a preferred plan selected via an IRP process and using competitive RFPs
12 automatically ensures competitive, market-based costs. The RFP was developed by
13 subject matter experts, internal and external, enlisted by Ameren Missouri to determine
14 the evaluation attributes.

15 **6.1. Solar Projects**

16 In June 2022, the Ameren Missouri launched a confidential RFP process to procure
17 new Solar resources with the support of 1898 & Co., an independent third-party advisor
18 and a subsidiary of Burns and McDonnell.⁷³ Ameren Missouri received 17 bidders, and
19 they proposed a total of 30 different Solar Projects. Then, Ameren Missouri narrowed its

⁷³ EA-2026-0183 Wibbenmeyer Direct, Page 49 Lines 1-2 Public

1 consideration to a total of 14 Projects by eight different developers.⁷⁴ Two of them are
2 Ringer Solar and Tom Sawyer Solar Projects.

3 The primary goal of the RFP was to gather transparent and competitive market data
4 from a pool of qualified Solar developers. Ameren Missouri Witness Wibbenmeyer states
5 that the Company developed prospective bidders list for the Solar RFP process with the
6 support of 1898 and Co, based on solar developers with significant utility-scale
7 renewable energy development experience and a demonstrated ability to deliver projects
8 that could support Ameren Missouri's renewable generation objectives.⁷⁵ When selecting
9 the Projects, Ameren Missouri considered a wide range of categories.⁷⁶ These include
10 the size and location of the Project, as well as the ownership structure and level of Project
11 maturity.⁷⁷ Ameren Missouri Witness Wibbenmeyer states that:

12 Ameren Missouri worked with 1898 throughout the RFP process,
13 including development of the solicitation materials, bid evaluation,
14 and market assessment. 1898 has extensive experience providing
15 engineering, consulting, and RFP support services for renewable
16 energy projects and has assisted Ameren Missouri with multiple
17 renewable resource solicitations.⁷⁸

18 Mr. Wibbenmeyer further states that,

19 ...the categories applied for the selection of projects to be
20 considered were as follows: project size, location, ownership
21 arrangements, project maturity, developer experience, technology
22 and project performance, transmission interconnection criteria,
23 constructability, locational market pricing, project pricing, tax

⁷⁴ EA-2026-0183 Wibbenmeyer Direct, Page 35 Lines 11-16 Public

⁷⁵ EA-2026-0183 Wibbenmeyer Direct, Page 34 Lines 1-9 Public

⁷⁶ EA-2026-0183 Wibbenmeyer Direct, Page 34 Lines 15-22 Public

⁷⁷ EA-2026-0183 Wibbenmeyer Direct, Page 34 Lines 15-22 Public

⁷⁸ EA-2026-0183 Wibbenmeyer Direct, Page 33 Lines 5-9 Public

credit qualification, status of acquisition of required land rights, status of environmental studies, and response to the form agreements included with the RFP.⁷⁹

Ameren Missouri Witness Wibbenmeyer states that the Tom Sawyer Solar Project was identified as one of the top Missouri-based Projects in the 2022 RFP results because of its location, size, and timeline for completion.⁸⁰ Ameren Missouri selected EDF power solutions Development, Inc. ("EDF")⁸¹ to evaluate the Engineering, Procurement, and Construction ("EPC") contractor and module supply contracts. Details of the Tom Sawyer BTA include:

*** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ***⁸²

Alongside Tom Sawyer Solar, Ameren Missouri selected Ringer Solar as one of the top Missouri-based Projects in the 2022 RFP results.⁸³ Then, Ameren Missouri issued an additional Solar Project RFP in 2025 using a similar scorecard and evaluation process as outlined previously for the 2022 RFP.⁸⁴ On Page 50 Lines 3 – 8, Ameren Missouri Witness

⁷⁹ EA-2026-0183 Wibbenmeyer Direct, Page 34 Lines 15-19 Public

⁸⁰ EA-2026-0183 Wibbenmeyer Direct, Page 36 Line 6 Public.

⁸¹ EA-2026-0183 Wibbenmeyer Direct, Page 29 Lines 14-15 HC.

⁸² EA-2026-0183 Wibbenmeyer Direct, Page 31 Lines 12-18 HC.

⁸³ EA-2026-0183 Wibbenmeyer Direct, Page 49 Lines 22-23 Public.

⁸⁴ EA-2026-0183 Wibbenmeyer Direct, Page 50 Lines 1-3 Public.

1 Wibbenmeyer states that, Ameren Missouri got responses from 34 bidders, including a
2 bid from Invenergy for the Ringer Solar Project.⁸⁵

3 Ameren Missouri Witness Wibbenmeyer states that the Ringer Solar Project stood
4 out during the 2022 RFP process and contract negotiations, earning a top evaluation score
5 among Missouri-based bidders.⁸⁶

6 Invenergy has a BTA with Ameren Missouri for Ringer Solar Project.⁸⁷ Ameren
7 Missouri notes that the proven success of earlier Projects, Boomtown and Split Rail Solar
8 Energy Centers-developed by Invenergy, has fostered a strong partnership between the
9 Ameren Missouri and Invenergy, providing Ameren Missouri additional confidence and a
10 solid foundation for this new Solar Project.⁸⁸ Details of the Ringer Solar BTA include:

11 *** [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED] ***⁸⁹

⁸⁵ EA-2026-0183 Wibbenmeyer Direct, Page 50 Lines 4-5 Public.

⁸⁶ EA-2026-0183 Wibbenmeyer Direct, Page 49, Lines 22-23, Public.

⁸⁷ EA-2026-0183 Wibbenmeyer Direct, Page 45 Lines 11-12 HC.

⁸⁸ EA-2026-0183 Wibbenmeyer Direct, Page 50 Lines 14-18 HC.

⁸⁹ EA-2026-0183 Wibbenmeyer Direct, Page 47 Lines 12-23, Page 48 Line 1.

1 However, EPC contractor and module supply contracts for the Ringer Solar
2 Project have not yet been finalized as of the direct testimony filed date.⁹⁰
3 Ameren Missouri Witness Wibbenmeyer states discusses about identified risks for the
4 Tom Sawyer Solar Project, including generator interconnection, legal/tariff changes, and
5 construction/procurement issues.⁹¹ These risks can individually or collectively cause
6 project delays, increased costs, and reduced profitability. Ameren Missouri has laid out
7 its risk management and mitigation strategies to ensure that Tom Sawyer Solar Project
8 remains viable and successful. Similarly, Ameren Missouri has also identified risks for the
9 Ringer Solar Project. The potential risks are generator interconnection, change in
10 law/tariffs, and construction/procurement. standards. Ameren Missouri has laid out its
11 risk management and mitigation strategies⁹² to ensure that Ringer Solar Project remains
12 viable and successful.

13 **6.2. BESS Projects**

14 In response to Staff Data Request 0040, attached as Schedule HKP-r3,
15 Ameren Missouri states that *** [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

⁹⁰ EA-2026-0183 Wibbenmeyer Direct, Page 51 Lines 21-23 HC.

⁹¹ EA-2026-0183 Wibbenmeyer Direct, Page 53 Lines 15-17.

⁹² EA-2026-0183 Wibbenmeyer Direct, Page 53 HC.

1 [REDACTED]. ***⁹³ Staff reviewed the attachment titled, “Big Hollow BESS RFP Scorecard,”
2 provided in response to Staff Data Request 0016 in File No. EA-2025-0238, attached as
3 Schedule HKP-r4, because the Ameren Missouri used the same scorecard for these three
4 BESS Projects. In this application, Ameren Missouri has not used any additional criteria
5 beyond what was captured in the scorecard prepared in File No. EA-2025-0238.

6 On December 6, 2024, the Ameren Missouri initiated a RFP process to identify a
7 qualified EPC Contractor for an upcoming Project. The initial list of bidders was carefully
8 compiled based on the Company’s prior experience with firms possessing recognized
9 industry expertise, either through past bid processes or successful completion of
10 previous Projects for the Company.

11 Ameren Missouri identified seven bidders to receive the RFP. Upon conclusion
12 of the RFP process, four bidders submitted formal responses for the Company’s
13 evaluation. The firm that was awarded the lowest bid went out of business so the bidding
14 Companies with the next lowest bid was awarded the EPC contract.⁹⁴ Ameren Missouri

15 *** [REDACTED]

16 [REDACTED]. ***⁹⁵

17 Ameren Missouri broke the bids down and scored the bids weighting each
18 bid’s scoring on *** [REDACTED]

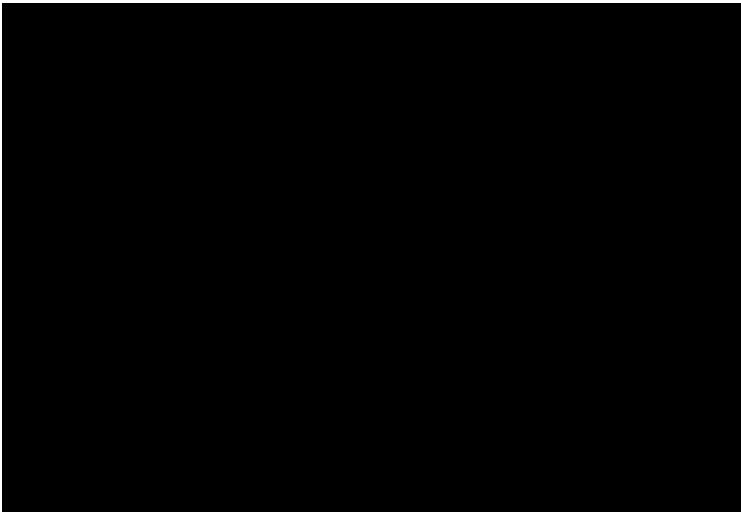
⁹³ Big Hollow CCN Application EA-2025-0238 Staff Data Request MPSC 0016.

⁹⁴ *** [REDACTED] *** See DR 0016.

⁹⁵ EA-2026-0183 Wibbenmeyer Direct, Page 16 Lines 21-23.

1 [REDACTED]. ***⁹⁶ As shown in the Table 9 below, Ameren Missouri assigned
2 weights given to each scoring metric:⁹⁷

3 ***



4 ***

5 Staff does not take issue with the weighting methodology used by Ameren Missouri
6 in determining the entity to construct the BESS projects.

7 **7. Conclusion on Economic Feasibility**

8 In summary, Staff concludes that two Solar Projects, three BESS Projects, and a
9 Switching Station are of sufficient importance to warrant the expense to meet large load
10 customers' needs related to RES compliance, provided those customers do not bring
11 their own renewables. This approach ensures the Ameren Missouri can fulfill its service
12 obligations and support growing RES compliance requirements.

13 *Staff Witness: Hari K. Poudel, PhD*

⁹⁶ EA-2025-0238 Staff Data Request 0016.

⁹⁷ Ibid.

E. Whether the Proposal is in the Public Interest

1. Site of Construction and Public Engagement

1.1 Siting

The proposed Ameren Missouri “umbrella” project to construct Renewable Generation Facilities (Solar) and Battery Energy Storage Systems (BESS) will be sited at five (5) separate locations in the state, and the Siting review will necessarily have to reference each component project. The various proposed projects are:

- Castle Bluff BESS facility
- Huck Finn BESS Facility
- Millcreek BESS Facility and Quinn Switching Station
- Tom Sawyer Solar Project
- Ringer Solar Project

Castle Bluff BESS Project

The Castle Bluff BESS project is proposed to be constructed on approximately ten (10) acres of land on the Ameren Missouri owned parcel that was formerly referred to as the Meramec Energy Center in St. Louis County. The construction project will install a 95 MW, four-hour lithium iron phosphate BESS facility on the same parcel as the Castle Bluff simple cycle CTG⁹⁸ is to be constructed.

The Castle Bluff BESS project will be comprised of the installation of approximately 92 battery enclosure skids. Each individual battery enclosure skid will contain battery modules and support equipment. The skids are designed to maximize

⁹⁸ See Case No. EA-2024-0237 which approved installation of the Castle Bluff simple cycle CTG.

1 fire safety and are outdoor rated enclosures. The output voltage from the battery
2 enclosure skids will be 480 volts but will be connected to transformers to increase the
3 voltage to 34.5 kV. From this point, the voltage will be routed to new generator step-up
4 transformers that will further increase the voltage to 138 kV and then be interconnected
5 through a short lead-line to the point of interconnection that already exists at
6 Ameren Missouri's transmission substation. Interconnection rights exist at this location
7 which had been utilized by the former Meramec Energy Center and will be further utilized
8 for the BESS project.⁹⁹

9 Huck Finn BESS Facility

10 The Huck Finn BESS project is proposed to be constructed on approximately
11 22 acres of land on the same Ameren Missouri owned parcel that the Audrain CTG energy
12 center is located. This site is west of Vandalia, Missouri, in Audrain County, and will be
13 constructed adjacent to the Ameren Missouri Audrain CTG and Spencer Creek
14 Substation. The purpose of the project is to install a 200 MW, four-hour lithium iron
15 phosphate BESS facility.

16 The Huck Finn BESS project will be comprised of approximately 192 battery
17 enclosure skids. Each individual battery enclosure skid will contain battery modules and
18 support equipment. The skids are designed to maximize fire safety and are outdoor rated
19 enclosures. Similar to the Castle Bluff BESS project, the output voltage from the battery

⁹⁹ See pg. 13, lines 10 – 19 of the Direct Testimony of Ameren Missouri Witness Scott Wibbenmeyer for a more detailed description of the existing interconnection rights for the Castle Bluff BESS Facility.

1 enclosure skids will be 480 volts but will be connected to transformers to increase the
2 voltage to 34.5 kV. This voltage will then be routed to new GSU transformers, and
3 increased to 345 kV, interconnected by a short lead line to the existing Ameren Missouri
4 Huck Finn Solar generator tie line, and will share the existing point of interconnection
5 with the Huck Finn Solar facility at the existing Ameren Missouri Spencer Creek
6 Switching Station.¹⁰⁰

7 Millcreek BESS Facility and Quinn Switching Station

8 The Millcreek BESS Facility is proposed to be constructed on approximately
9 24 acres of land on which Ameren Missouri possesses a five-year purchase option from
10 Millcreek Solar Energy Development. Ameren Missouri intends to purchase this 24-acre
11 parcel of property if the CCN application is approved by the Commission. The site is
12 located north of Troy, Missouri, in Lincoln County. This project proposes installing a
13 250 MW, four-hour lithium iron phosphate BESS facility.

14 The Millcreek BESS Facility will consist of approximately 240 battery enclosure
15 skids. Each individual battery enclosure skid will contain battery modules and support
16 equipment. The skids are designed to maximize fire safety and are outdoor rated
17 enclosures. Similar to the Castle Bluff BESS project as well as the Huck Finn BESS
18 project, the output voltage from the battery enclosure skids will be 480 volts but will be
19 connected to transformers to increase the voltage to 34.5 kV. This 34.5 kV output will then

¹⁰⁰ See pg. 15, lines 1 – 7 of the Direct Testimony of Ameren Missouri Witness Scott Wibbenmeyer for a more detailed description of the interconnection considerations for the huck Finn BESS facility.

1 flow to new GSU transformers that will increase the voltage to 161 kV. Next the stepped-
2 up voltage will flow through a short lead-line to the point of interconnection.¹⁰¹ This point
3 of interconnection will occur at the to-be-constructed Quinn Switching Station.¹⁰²
4 The Quinn Switching Station is a separate project named within this overall CCN
5 application and must be built to provide an interconnection point to the grid for the
6 electrical power that would be flowing from the Millcreek BESS project. The proposed
7 Quinn Switching Station is to be constructed at a location on which Ameren Missouri has
8 a purchase option, and which is directly adjacent to an existing 161 kV transmission line.

9 Tom Sawyer Solar Project

10 The proposed Tom Sawyer Solar Project is a 175 MW solar generation resource that
11 will be located approximately three miles from the existing Vandalia Solar Energy Center,
12 in Audrain County. The Tom Sawyer Solar Project will require approximately 1,200 acres
13 of agricultural land that is currently described in the Ameren Missouri CCN application as
14 “being under lease, easement, or purchase option by EDF power solutions Development,
15 Inc. (“EDF”).” The agricultural land on which the Tom Sawyer Solar Project is to be
16 constructed is located adjacent to the existing Huck Finn Solar Energy Center.
17 Construction of the Tom Sawyer Solar Project will include the construction of
18 approximately two miles of a generator lead-line, which will interconnect to the

¹⁰¹ See pg. 15, lines 8 – 13 of the Direct Testimony of Ameren Witness Scott Wibbenmeyer for discussion about the MISO ERAS process to obtain a GIA.

¹⁰² See pgs. 2 – 8 of the Direct Testimony of Ameren Missouri Witness Harman Ormani for all project details of the Quinn Switching Station project.

existing Ameren Missouri Spencer Creek 345 kV switching station utilizing a shared 345 kV lead-line with the Huck Finn Solar Energy Center.

Ringer Solar Project

The proposed Ringer Solar Project is a 225 MW solar generation resource that will be built in Stoddard County. The Project will cover an area of approximately 3,900 acres of agricultural land. This land is currently described in the Ameren Missouri CCN application as “agricultural land presently under lease, easement, or purchase option by the special purpose entity, Ringer Solar LLC, a wholly owned subsidiary of Ringer Solar Holdings LLC, which is wholly owned by Invenergy Renewables Global LLC (“Invenergy”)”. Ameren Missouri was previously granted a CCN to construct the future Vanduser Switching Station in Case No. EA-2026-0018. The Ringer Solar project will interconnect to the existing Morley-Stoddard 161 kV transmission line at the future Vanduser Switching Station.

Staff Witness: Donald A. Fontana, PE

1.2 BESS Safety

Ameren Missouri has proposed constructing Battery Energy Storage System (BESS) facilities at three separate locations within Ameren Missouri’s service territory.

The Castle Bluff BESS Project will consist of approximately 92 battery enclosure skids, each of which will be made up of battery modules and support equipment housed in specially designed, outdoor rated enclosures. The BESS Project will be interconnected to other battery enclosures and wired to transformers to step up the 480 volt battery skid

1 output voltage to 34.5 kV, which will then be routed to new generator step-up ("GSU")
2 transformers, increasing the voltage to 138 kV before being interconnected through a
3 short lead-line to the point of interconnection within Ameren Missouri's existing
4 transmission substation. The facility will be capable of being monitored and controlled
5 through a Supervisory Control and Data Acquisition ("SCADA") system, allowing full
6 remote operations to charge or dispatch the facility, similar to Ameren Missouri's other
7 renewable and gas turbine operations.

8 The Huck Finn BESS Project will consist of approximately 192 battery enclosure
9 skids, each of which will be made up of battery modules and support equipment housed
10 in specially designed, outdoor rated enclosures. The BESS Project will be interconnected
11 to other battery enclosures and wired to transformers to step up the 480-volt battery skid
12 output voltage to 34.5 kV, which will then be routed to new GSU transformers, increasing
13 the voltage to 345 kV before the site is interconnected through a short lead line to the
14 existing Ameren Missouri Huck Finn Solar generator tie line.

15 The Millcreek BESS facility will consist of approximately 240 battery enclosure
16 skids. The battery skids will be placed on newly installed foundations, interconnected to
17 other battery enclosures and wired to transformers to step up the 480-volt battery skid
18 output voltage to 34.5-kV. The 34.5-kV output will then be routed to new GSU
19 transformers, increasing voltage to 161-kV before the site is interconnected through a
20 short lead line to a point of interconnection at the proposed Ameren Missouri Quinn
21 Switching Station. Ameren Missouri further notes in its application that "[t]he facility will
22 be capable of being monitored and controlled through a SCADA system, allowing full

1 remote operations to charge or dispatch the facility, similar to Ameren Missouri's other
2 renewable and gas turbine operations.”¹⁰³

3 The components of individual battery enclosure skid units proposed for all three
4 BESS project locations described above consist of battery modules, monitoring and
5 safety equipment, cooling equipment, and controls. The enclosure skids are outdoor
6 rated – meaning each unit is its own functional, weatherproof, self-contained structure.
7 The overall individual BESS facilities will have the capability of being controlled and
8 monitored by Ameren Missouri’s SCADA system, which will allow all operations of the
9 entire BESS facility to be conducted remotely. This is comparable to how Ameren Missouri
10 operates its other renewable and gas turbine infrastructure.

11 Safety of the three proposed BESS facilities was a concern expressed at the
12 Commission’s in-person Local Public Hearings in Eolia, Missouri, and Vandalia, Missouri,
13 on July 28, 2026, at the Virtual Local Public Hearing on the July 29, 2026, and at the in-
14 person Local Public Hearing in Advance, Missouri, on July 30, 2026, as well as in
15 numerous comments submitted in the EFIS system. Given the history of fires at other
16 BESS facilities in the United States, such as described in the EPA document titled *Battery*
17 *Energy Storage Systems: Main Considerations for Safe Installation and Incident*
18 *Response*,¹⁰⁴ and in the *American Clean Power Assessment of Potential Impacts of Fires*

¹⁰³ EA-2026-0183 Application, paragraph 18, page 11.

¹⁰⁴ [Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response](https://www.epa.gov/system/files/documents/2025-08/battery_energy_storage_systems_fact_sheet.pdf);
https://www.epa.gov/system/files/documents/2025-08/battery_energy_storage_systems_fact_sheet.pdf

1 at BESS Facilities¹⁰⁵ document, Staff issued data requests regarding the safety aspects of
2 the various proposed BESS sites, including early detection devices within the individual
3 BESS structures that sense temperature increases, smoke, and gas buildup – particularly
4 with respect to the potential of a thermal runaway event.¹⁰⁶

5 ** [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED] ** 107

9 ** [REDACTED]

10 [REDACTED]

11 [REDACTED] 108 [REDACTED]

12 [REDACTED] 109

13 • [REDACTED] 110 [REDACTED]

14 • [REDACTED] 111 [REDACTED]

15 • [REDACTED]

¹⁰⁵ [Assessment-of-Potential-Impacts-of-Fires-at-BESS-Facilities.pdf](#); <https://cleanpower.org/wp-content/uploads/gateway/2025/03/Assessment-of-Potential-Impacts-of-Fires-at-BESS-Facilities.pdf>

¹⁰⁶ Underwriters Laboratory defines thermal runaway as “a phenomenon in which the lithium-ion cell enters an uncontrollable, self-heating state. Thermal runaway can result in: Ejection of gas, shrapnel and/or particulates (violent venting); Extremely high temperatures; Smoke; Fire”.

¹⁰⁷ Confidential DR No. MPSC 0109.

¹⁰⁸ EA-2025-0238 Confidential DR No. MPSC 0029.

¹⁰⁹ The various safety standards referenced below apply to BESS in general.

¹¹⁰ Underwriters Laboratory (UL).

¹¹¹ International Electrotechnical Commission (IEC).

- 1 • [REDACTED] ¹¹² [REDACTED]
- 2 • [REDACTED]
- 3 • [REDACTED] ¹¹³ [REDACTED]
- 4 • [REDACTED] ¹¹⁴ [REDACTED]
- 5 • [REDACTED] ¹¹⁵ [REDACTED]
- 6 • [REDACTED]
- 7 [REDACTED]
- 8 [REDACTED]
- 9 [REDACTED]
- 10 [REDACTED]
- 11 [REDACTED]
- 12 [REDACTED]
- 13 [REDACTED]
- 14 [REDACTED]
- 15 [REDACTED]
- 16 [REDACTED]
- 17 [REDACTED] ¹¹⁶ ** the following explanation that for each battery
- 18 enclosure unit:

¹¹² Canadian Standards Association (CSA).

¹¹³ European Standard (EN for NORME EUROPÉENNE).

¹¹⁴ United Nations (UN).

¹¹⁵ Institute of Electrical and Electronics Engineers (IEEE).

¹¹⁶ Confidential DR No. MPSC 0110.

1 ** [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED] **117

11 The Battery Energy Storage System industry has learned and adapted since the
12 McMicken fire with respect to many aspects of BESS safety. Key items among acquired
13 knowledge since the 2018 fire are early and aggressive management of explosive gases to
14 mitigate accumulation, and the ongoing study of the characteristics inherent to the
15 various types of battery cells (with respect to their behavior prior to and during a thermal
16 runaway), which have been utilized in various BESS facilities across the country.

17 ** [REDACTED]

18 [REDACTED]

19 [REDACTED]

¹¹⁷ This article link details the differences between the Megapack 2XL which were the type of BESS units specified for the Big Hollow project and proposed EA-2026-0183 Megapack 3 units. [Tesla unveils new generation of utility-scale batteries: Megapack 3 and Megablock - Energy Storage.](#)

1 [REDACTED]

2 [REDACTED]

3 [REDACTED] **118

4 ** [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED] ** 119

15 Preliminary clear distances were submitted, and Ameren Missouri states the

16 site-specific Hazard Mitigation Analyses (“HMA”) will address all hazards. At the proposed

17 Huck Finn site, the BESS project would be approximately 470 linear feet from incoming

18 gas supply equipment and approximately 620 linear feet from new fuel oil tanks. At the

19 proposed Millcreek site, the nearest building would be approximately 1,440 linear feet

¹¹⁸ Confidential DR No. MPSC 0029 in Case No. EA-2025-0238.

¹¹⁹ Confidential DR No. MPSC 0111.

1 away, and Highway 61 would be approximately 1,000 linear feet away, Additionally, the
2 161 kV transmission line would be approximately 150 linear feet away. At the proposed
3 Castle Buff site, the BESS project would be approximately 350 linear feet from the new
4 Castle Bluff CTG fuel oil tanks, approximately 250 linear feet from the nearest CTG,
5 approximately 375 linear feet from the stat-coms, and approximately 350 linear feet from
6 the Meramec 345 kV switchyard.¹²⁰

7 No locally adopted ordinances or fire codes apply to the proposed Huck Finn and
8 Millcreek BESS sites. The 2021 International Fire Code was adopted by the Mehlville FPD
9 as Ordinance No. 133 and would apply to the proposed Castle Bluff BESS.¹²¹

10 Ameren Missouri has not conducted pre-design meetings with the Authority
11 Having Jurisdiction (“AHJ”) but stated that “(E)ach AHJ has been contacted regarding the
12 projects and pre-design meetings have been requested, which should be held in the
13 coming weeks.

14 In the interim, Ameren’s Fire Protection SME is actively reviewing the selected
15 design. As part of this review, the engineer will provide feedback and coordinate directly
16 with the AHJ to ensure all relevant safety considerations are thoroughly addressed.”

17 When asked if Ameren Missouri has conducted a Hazard Mitigation Analysis for
18 each proposed BESS Facility, Ameren Missouri responded:

19 ** [REDACTED]
20 [REDACTED]

¹²⁰ DR No. MPSC 0104.

¹²¹ DR No. MPSC 0102.

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED] [REDACTED]
5 [REDACTED] 122
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED] **

16 Staff reviewed various potential aspects that could affect the safety of the
17 proposed BESS Facilities, particularly related to thermal runaway events. Staff asked a
18 wide range of data requests that facilitated a robust review of safety with respect to the
19 proposed BESS facilities. Between Staff's in-house research and educational process,
20 and the responses from Ameren Missouri, Staff concludes that the proposed BESS
21 facilities will be safe and recommends that as a condition of approval, the Commission

¹²² Ameren Missouri's response to Staff Data Request 0103.

1 require copies of ** [REDACTED]
2 [REDACTED]. ** It is the opinion of Staff that there will be
3 no more risk associated with the proposed BESS Facilities than there is with any other
4 aspect of Ameren Missouri's operations.

5 *Staff Witness: Donald A. Fontana, PE*

6 **1.3 Public Engagement**

7 As of the morning of July 31, 2026, there were fifty-nine (59) comments in EFIS. It is
8 anticipated that more comments will be submitted. To date, one comment was unrelated
9 to this case and referenced the proposed ATXI Eastern Missouri Grid Transformation
10 project. Two comments question the safety of BESS facilities. One of the two comments
11 attached a study titled *The Intrinsic Danger of Siting Utility Scale Lithium Based Energy*
12 *Storage Systems In Densely Populated Areas: Such Danger Would Be Magnified In Nassau*
13 *And Suffolk Counties* ("Safety Study"), and the other expressed concern about a volunteer
14 fire department being placed into the position of potentially having to respond to a
15 thermal runaway event, if one were to ever happen.

16 Regarding the Safety Study, Staff notes it addressed areas in Nassau and Suffolk
17 Counties, New York, which is a more populated area than where Ameren Missouri
18 proposes the three BESS facilities in this CCN application. The Safety Study also
19 addressed Lithium-Ion batteries while the battery type that Ameren Missouri proposes
20 as a part of this CCN is Lithium Iron Phosphate ("LFP"). The benefit of LFP batteries is
21 that the chemistry of LFP batteries is reported to have better thermal stability than

1 Lithium-Ion batteries, meaning that they can reportedly withstand temperatures up to
2 270-degrees Celsius (518-degrees Fahrenheit) which is approximately 60-degrees
3 Celsius (140-degrees Fahrenheit) higher than Lithium-Ion batteries are reported to be
4 able to withstand. The submitted study raises legitimate safety concerns, but it is
5 important to note that the two different types of battery chemistries utilized, and the
6 substantial population differences of the proposed BESS Project locations do not allow
7 for an “apples to apples” type comparison.

8 Many comments submitted to date express concern about the loss of prime
9 farmland, and advocate for underutilized areas such as road rights-of-ways to be used
10 instead. Many comments express concern that the proposed projects are precursors to
11 support future data centers. Many comments are concerned with the burden that will be
12 placed on local volunteer fire departments, the safety of volunteer first responders,
13 training and costs of training for volunteer fire departments, costs associated with fire
14 responses to BESS facilities, pollution dangers from fires at BESS facilities, and negative
15 water quality impacts. Many comments request access to all environmental studies as
16 well as studies that address impacts on wildlife. Many comments request that any
17 cleanup or remediation due to decommissioning, damage repair, etc. be fully funded
18 by Ameren Missouri, and that no associated costs be allowed to be passed on to
19 consumers. Comments were also submitted requesting additional Local Public Hearings.
20 Every comment received to date is opposed to approval of the CCN application.

21 Three In-Person Local Public Hearings and one Virtual Local Public Hearing were
22 held on the following dates and at the following locations:

In-Person Local Public Hearings (“LPH’s”)

Tuesday, July 28, 2026, at 12:00 p.m. in Eolia, Missouri

There were approximately 125 people in attendance at the Eolia In-Person LPH. Ten (10) people provided sworn testimony during the hearing portion of the LPH. All the people providing sworn testimony were opposed to the CCN application and asked that the Commission deny it. The primary concerns expressed by those testifying included:

- Pollution if there was ever a battery fire;
- Potential precursor to serving electrical needs of future Data Centers;
- Potential for rate increases as a result of these projects being built;
- Potential for increases land costs due to the prices paid for acquisition of land by Ameren;
- Location in that the Projects are planned to be sited in less populated areas where zoning and local regulations may be less strict than in urbanized areas;
- Potential fire safety concerns at a BESS facility that would be above the capabilities of the local volunteer firefighters to respond to; and,
- Transparency of environmental studies.

Tuesday, July 28, 2026, at 6:00 p.m. in Vandalia, Missouri

There were approximately 25 people in attendance for the Vandalia In-Person LPH. Six (6) people provided sworn testimony during the hearing portion of the LPH. Two of the people who testified were strongly opposed to Ameren’s CCN request. Three people who testified were favorable of the revenue that would be generated through the Chapter 100 Bond program for the local community school district. One person who testified said the local Laborers Union would be in favor of the project if Ameren used local Union labor.

Thursday, July 30, 2026, at 6:00 p.m. in Advance, Missouri

There were approximately 33 people in attendance for the Advance In-Person LPH. Three (3) people provided sworn testimony during the hearing portion of the LPH. With respect to the Ringer Solar Project in Stoddard County, Missouri, one person stated that he would like to see assurances that there would be no long-term environmental impact to the land if / when the facility were ever decommissioned and that there be a legally binding requirement that any site remediation be 100% funded by shareholders. One person stated they want their community protected and believes Ameren Missouri to be a good caretaker but expressed disappointment with the Public Service Commission (“PSC”) with regard to protection of rate payers. One person stated that while not being a huge fan of solar due to aesthetics, he appreciates the fact that Ameren Missouri has been in business as long as it has and its ties to Missouri.

Virtual Local Public Hearing

Wednesday, July 29, 2026, at 6:00 p.m.

There were approximately 95 people logged in to the Virtual LPH. Nine (9) people provided sworn testimony during the hearing portion of the LPH. Five (5) people testified they were in strong support of the project, but one person was also concerned that costs would be passed on to the ratepayers. Two people testified that they would like all environmental and wildlife studies that had been done by Ameren to be released to the public prior to the Commissioners voting on the CCN application. Several of the people testifying voiced concerns about data centers; noise generation; water usage; resource depletion, and that accountability of all data center developers needs to be provided.

1 Through the In-Person and Virtual Local Public Hearing process, many people took
2 advantage of the opportunity to ask questions of Ameren Missouri Staff, Commission
3 Staff, and Staff of the Office of Public Counsel; to provide sworn testimony during the
4 Hearings, and to offer comments that can be read in the EFIS system. If the
5 Commissioners have not had the opportunity to read the comments which have been
6 submitted, Staff respectfully suggest that the Commissioners read the comments and
7 attachments for Case No. EA-2026-0183 as they consider how they will vote regarding
8 Ameren Missouri's CCN application.

9 *Staff Witness: Donald A. Fontana, PE*

10 **1.3.1 Cost of Service Projections**

11 This section describes the inputs to Staff's modeling of the annual revenue
12 requirements and estimated allocated rate impacts of the assets. This modeling is not a
13 prediction of future rate impacts, in that Ameren Missouri's managerial decisions, actual
14 inflation levels, actual rate case timing, future commission determinations, and future
15 energy and fuel costs cannot be exactly predicted. Staff's reliance on a particular input
16 or use of a particular modeling approach should not be interpreted as an endorsement or
17 recommendation of that approach or outcome.

18 For allocations of cost of service to the rate classes, Staff relied on
19 Ameren Missouri's determinants, methods, and calculations as requested in File No.
20 ER-2026-0291. Staff did not perform an independent cost of service calculation and
21 relied entirely on the revenue requirements provided by Ameren Missouri in response to

Staff Data Request 0014, including estimates of in-service lives of 65 years for the Interconnection asset, 30 years for the solar assets, and 20 years for the BESS assets. Ameren Missouri's confidential response to Staff Data Request 0014 is attached as Schedule RTJ-r1.

2030 is scheduled to be the first year all assets will be in operation. Data obtained from Ameren Missouri Witness testimony and responses to Staff Data Requests 0014 and 0075 indicates the following:

**



**

For scenarios reflecting the addition of large load, Staff incorporated 2,800 MW of new large load customer(s) with an 85% load factor into the allocator calculation. The variation of these projections to actual results and variables such as rate case timing could alter actual customer impacts.

The year-by-year modeling is included in workpapers, and illustrations of the modeling results are included in the following section.

Staff Witness: Randall T. Jennings

1.3.2 Cost allocation and rate impacts

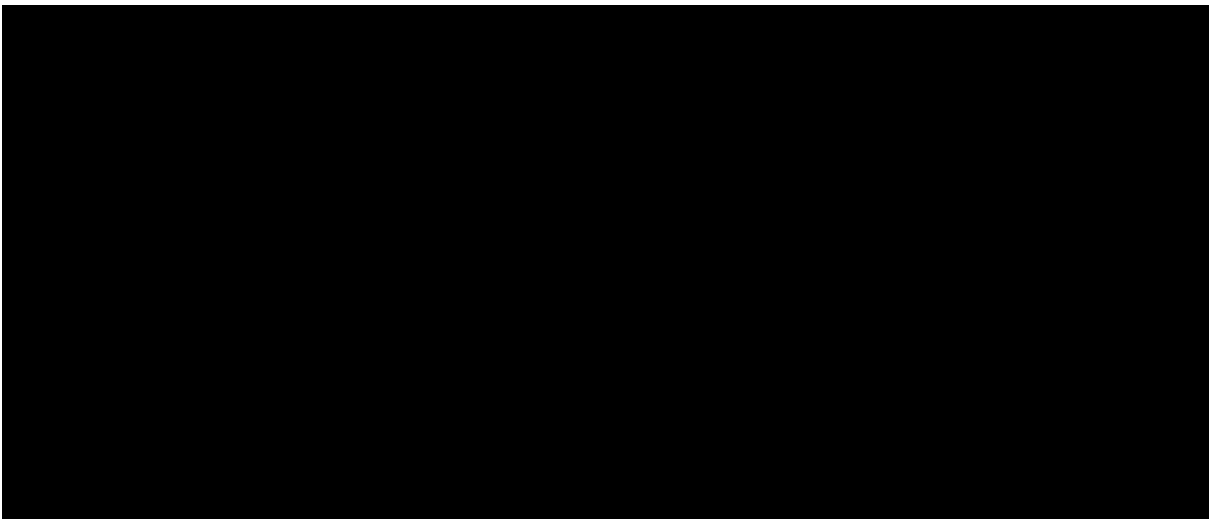
In considering the need, economic feasibility, and public interest of the proposed Project, Staff recommends the Commission consider the potential rate

impacts to be expected in future cases under the class cost of service allocation approach taken by Ameren Missouri in its currently ongoing rate case,¹²³ and Ameren Missouri's allocator calculations.

It is important to note that scenarios discussed in this section do not address rate case timing, rate increases for any reason over the life of the projects and rely solely upon workpapers provided by Ameren Missouri in response to Staff Data Requests 0014 and 0075. The Figure 10 below models the rate impact by class without any additional customers:

Figure 10: Unadjusted Net Annual Rate Impact without New Large Load Customers
2029- 2029-2058

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**

If the Project is completed but no additional customers are added, the Residential rate class would pay approximately ** [REDACTED] ** in additional rate charges during the

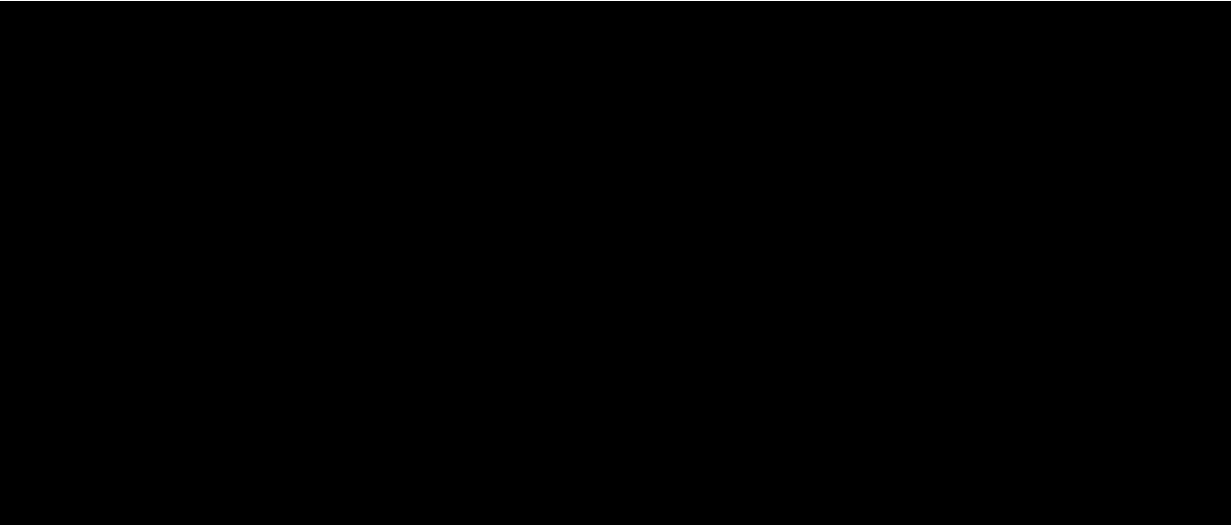
¹²³ See Case No. ER-2026-0291.

first 30 years of the lifespans of the assets or ** [REDACTED] **% of the total additional rate charges this Project will cause during that time frame. Each hypothetical residential customer would pay an additional ** [REDACTED] ** over the span of those years.

The Figure 11 below models the rate impact by class with 2,800 MW of Large Load Customers being added. In this hypothetical model, the Residential rate class would still pay approximately ** [REDACTED] ** in additional rate charges over the lifespans of the assets. While this amount is ** [REDACTED] **% less than it would be if no Large Load Customer(s) are added, it still represents an increase in rates for each customer within the Residential rate class of ** [REDACTED] ** over the span of those years.

Figure 11: Unadjusted Net Annual Rate Impact Years 2029-2058, with 2,800 MW New Large Load Added

**



**

Other rate classes will also be affected by inclusion of the assets. The Table 10 below lists the number of customers in each rate class, the total amount paid by each customer in the respective rate classes over the lifespans of the assets based upon

an estimated average power usage, whether or not 2,800 MW of new LLC is added, and the totals for each rate class.¹²⁴

Table 10: Number of customers and the total paid by each customer in each rate class

**



**

For example, if the project is completed but no additional customers are added, the Residential rate class will pay approximately **  ** % of the total project costs during years 2029 through 2058. If 2,800 MW of new LLC is added, the percentage of costs paid by the Residential rate class will be reduced to **  ** % of the total costs.

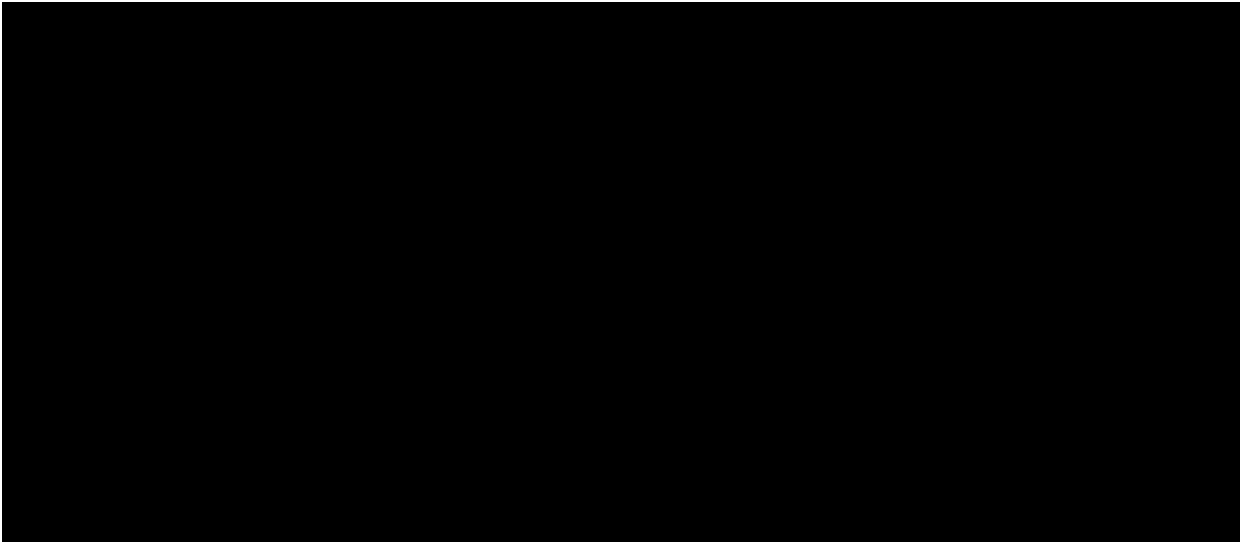
This hypothetical residential customer would pay an additional **   ** from 2029 through 2058 depending on whether no new load or whether 2,800 MW of LLC load is added, respectively. The annual impact on each of the **  ** hypothetical residential customer ranges from **  ** to **  ** over these years of the life of the assets.¹²⁵

¹²⁴ This table does not address rate case timing or rate increases for any reason over the life of the plant, and relies solely upon workpapers provided by Ameren Missouri in response to Staff Data Request 0014.

¹²⁵ These figures do not address rate case timing or rate increases for any reason over the life of the plant, and relies solely upon workpapers provided by Ameren Missouri in its response to Staff Data Request 0014.

Figure 12: Annual Bill Impact on Each Residential Customer

**



**

Ameren Missouri 's allocators¹²⁶ were used for the purpose of illustrating the potential bill impact to a residential customer. However, Staff is not recommending that the Commission make a determination on the allocation of the cost of service of the Project in this case. Such a determination is appropriate for subsequent rate cases in which recovery for these assets is sought so that the Commission may consider all relevant factors in place at that time.

Staff Witness: Randall T. Jennings

2. Large Load Customers Program (Rider RSP LLC)

The Commission has approved Large Load Customer Service (LLCS) rates¹²⁷ for Ameren Missouri under Section 393.130.7, RSMo., which required tariff provisions

¹²⁶ Staff DR 0014, attached as Confidential Schedule RTJ-r1.

¹²⁷ Schedule 6, Sheets 61.5 – 61.19.

1 applicable to customers who are reasonably projected to have an annual peak demand
2 of one hundred megawatts or more, that “reasonably ensure such customers' rates will
3 reflect the customers' representative share of the costs incurred to serve the customers
4 and prevent other customer classes' rates from reflecting any unjust or unreasonable
5 costs arising from service to such customers.”¹²⁸

6 As addressed in Staff’s Need and Economic Feasibility sections of this report
7 authored by witnesses Malachi Bowman and Hari K. Poudel, PhD, the need for the
8 Projects is for winter capacity to serve large load customers and a source of renewable
9 energy credits to serve large load customers, in compliance with the Missouri Renewable
10 Standard (RES), Section 393.1030, RSMo. However, depending on the timing of various
11 regulatory activities, it is possible that Ameren Missouri ratepayers will first pay rates
12 associated with Projects through the Ameren Missouri RESRAM. To the extent that any
13 portion of the cost of service associated with the Projects is reflected in Ameren
14 Missouri’s RESRAM, the bills of all Ameren Missouri customers will be higher than they
15 otherwise would, because of large load customers. As discussed below, in the event that
16 an LLCS customer participates in the Renewable Solutions Program – Large Load
17 Customers Program (Rider RSP LLC), then the bills of all customers *except* the large load
18 customer will be higher than they otherwise would, because of large load customers.

19 In Case No. ET-2025-0184, Ameren Missouri requested and obtained a variance
20 from rule requirements in 20 CSR 4240.20.100(1)(W) which excludes from “total retail

¹²⁸ Section 393.130.7, RSMo.

1 electric sales” the portion of qualifying large load customers’ usage that is backed by
2 sufficient renewable attributes to cover the applicable Renewable Energy Standard
3 requirement for that load. Ameren Missouri’s LLCs tariff, at sheet 61.19 provides:

4 Notwithstanding any provisions of Rider RESRAM to the contrary, a
5 Large Load Customer shall not be subject to RESRAM charges if it
6 participates in Rider RSP-LLC or any other voluntary rider offered by
7 Company and thereby receives or is reasonably projected to receive
8 renewable attributes supporting its load at a level that is greater than
9 or equal to the then applicable "RES portfolio requirement" as
10 defined in 20 CSR 4240-20.100(1)(R). For Large Load Customers
11 with such participation agreements, the Large Load Customer's
12 entire load that is supported with renewable attributes it receives
13 or is reasonably projected to receive that are sufficient to cover the
14 applicable "RES portfolio requirement" as defined in 20 CSR 4240-
15 20.100(1)(R) will be subtracted from the calculation of "total retail
16 electric sales" as defined in 20 CSR 4240-20.100(1)(W). RESRAM
17 charges shall still apply to such a Large Load Customer to the
18 extent the renewable attributes it receives or is reasonably
19 projected to receive do not reach the then applicable "RES portfolio
20 requirement".

21 It is possible, therefore, that although Ameren Missouri relies, in this case, on projected
22 large load materialization to support the granting of a CCN for Projects, that the actual
23 large load customer may be partially or wholly exempted from paying for the Projects
24 through the RESRAM.

25 In recent CCN requests for Solar Projects, Ameren Missouri has consistently
26 justified the builds for meeting RES requirements. However, Ameren Missouri has also
27 designated those same facilities for RSP negating the ability to meet the RES with RECs
28 produced by the facility. The RSP, as currently funded, does not cover the full revenue
29 requirement associated with a given facility, leaving all other customers to cover the
30 difference. Staff recommends Ameren Missouri clearly identify the purpose of the facility,

1 within surrebuttal testimony in this case. It is not reasonable to continually justify
2 renewable assets based upon the RES and then later deciding to instead utilize the assets
3 to serve the interests of a small subset of customers.

4 If the Solar Projects in this case are utilized by Ameren Missouri for the Renewable
5 Solutions Program (RSP) or RSP-LLC, Staff recommends that Ameren Missouri to
6 develop the RSP rates in a manner that fully recovers the revenue requirement associated
7 with the facility in each year, shielding non-participating customers from paying for assets
8 through base rates. If the RSP rate does not fully recover the cost of service associated
9 with the Solar Projects, the financial consequences should be borne by Ameren Missouri,
10 not its ratepayers.

11 In a future rate case, Ameren Missouri's decision to proceed with the construction
12 of these facilities as RES compliance assets will be determined by the extent to which
13 Ameren Missouri knew, or should have known that some or all of the energy sales to large
14 load customers that Ameren Missouri relies on to justify the need of this asset for RES
15 compliance purposes may be excluded from the RES portfolio requirement. In short,
16 if prior to proceeding with this CCN, Ameren Missouri knows or becomes aware that the
17 facility is not needed for RES compliance, the financial consequences of the imprudence
18 of the decision to proceed should be borne by Ameren Missouri, not its ratepayers.

19 *Staff Witness: J Luebbert*

V. Rate Making Considerations

A. Ratemaking Mechanisms For Solar and BESS Projects

The Ringer Solar, Tom Sawyer and BESS Projects that are the subject of this CCN may be eligible for Plant in Service Accounting (PISA).¹²⁹

PISA was enacted into law in June of 2018 by Missouri Senate Bill 564 and allows electrical corporations to track and defer 85% of all depreciation expense and return associated with qualifying electric plant to a regulatory asset when the plant goes into service until such time as the investment is recorded to plant in service on the utility's books. Qualifying electric plant refers to all rate-base additions but specifically excludes new coal-fired or nuclear generating units, and additions that increase revenues by serving new customers premises.¹³⁰ A key aspect of PISA treatment is the definition of "qualifying electric plant", which determines which infrastructure investments a utility can defer. The law explicitly excludes rate base additions that increase revenues by allowing service to new customers premises. If a "large load" is a new customer, the specific infrastructure built to serve that premise may not qualify for the 85% PISA deferral. This prevents utilities from using PISA to defer costs for assets that are already generating new, offsetting revenue from a massive new user.

The Renewable Energy Standard Rate Adjustment Mechanism (RESRAM) was established by Missouri voters on November 4, 2008, as part of the Missouri Clean Energy

¹²⁹ The Ringer and Tom Sawyer Solar Facilities would be eligible for PISA if considered "qualifying electric plant" that does not increase revenue by allowing service to new customer premises.

¹³⁰ RSMo Section 393. 1400.3.

1 Act, otherwise known as Proposition C, and is a regulatory tool used to recover costs
2 specifically related to compliance with the Renewable Energy Standard (RES).¹³¹

3 The RES is a regulatory requirement that obligates all investor-owned electric
4 utilities in Missouri to generate or purchase a specific percentage of their electric retail
5 sales from renewable energy resources. Starting in 2021, electric companies are required
6 to ensure that no less than 15% of their retail electric sales come from renewable
7 resources, including at least 2% of an electric utility's retail electric sales derived from
8 solar energy. Recoverable costs include both capital and expense items directly related
9 to RES compliance, such as depreciation, taxes, and a fair return on capital projects. The
10 law governing RES and RESRAM was modified by Senate Bill 4 which allows certain
11 electric utilities, Evergy, to reduce its RES obligations when supported by accelerated
12 renewable buyers.¹³² An accelerated renewable buyer is a large customer with an
13 aggregate load of at least 80 average megawatts.

14 The company expects to utilize PISA for each of the five projects, meaning Ameren
15 Missouri plans to defer 85% of all depreciation expense and return associated with these
16 projects to a regulatory asset.¹³³ In the spirit of SB 4, Staff recommends that Ameren
17 Missouri exclude from the PISA calculation any qualifying electric plant determined to
18 serve a large-load customer.

¹³¹ RSMo Section 393.1030.

¹³² RSMo Section 393.1030.2.

¹³³ Ameren Missouri response to Staff Data Request 0014.

1 If the Solar Projects are utilized for RES compliance, the remaining 15% of
2 depreciation and return would be eligible to be included in the RESRAM. However, if
3 Ameren Missouri utilizes the two Solar Projects for the Renewable Solutions Program
4 (RSP),¹³⁴ RSP-LLC,¹³⁵ large load or another subscriber program, then the projects
5 cannot be utilized for meeting RES compliance due to the fact that the RECs retired from
6 the facility would not be for Ameren Missouri to meet RES rule compliance. Instead, the
7 RECs retired would be on behalf of subscribing customers in the following classes: large
8 general service (3M), small primary service (4M), and large primary service (11M), and
9 large load 14(M).¹³⁶ While it may be determined in a future rate case that the Solar and
10 BESS assets are eligible for PISA treatment, if the solar assets are not used to meet
11 Ameren Missouri's RES compliance, then those Solar Projects will not be eligible for
12 RESRAM treatment. The BESS assets are not RES compliance assets and thus are not
13 eligible for RESRAM inclusion.

14 Ameren Missouri states that they may also decide in the future to seek inclusion in
15 the RESRAM 15% of both capital and expense of either or both Solar Projects to the extent

¹³⁴ The RSP is a subscription-based program that Ameren Missouri offers to Missouri businesses so that the business can claim clean energy, reduce their carbon footprint, and meet sustainability goals. An RSP asset produces RECs for Ameren Missouri; however, those RECs are retired semi-annually on behalf of the business paying the subscription under the authorized tariff. Tariff sheet 74.11.

¹³⁵ Renewable Solutions Program rider for Large Load Customers.

¹³⁶ As part of Ameren Missouri's Direct Testimony filing in its concurrent rate case, ER-2026-0291, witness Steven M. Wills proposes to establish the service classification 14(M), the large load class. Page 8, footnote 6.

1 it is determined that the primary purpose of the project(s) is that the output of the
2 project(s) is needed to satisfy the Company's RES compliance requirements.¹³⁷

3 Staff recommends that any ratemaking determination for PISA and RESRAM be
4 determined in a future rate case proceeding when the assets are in service. Staff also
5 recommends that the Commission order Ameren Missouri to notify Staff within this
6 docket regarding whether the Ringer and Tom Sawyer Solar Projects will be utilized for RES
7 compliance, the RSP program, or another subscriber program. If the asset is determined
8 to be for the RSP or another subscriber program, Staff recommends that the Ameren
9 Missouri track and specifically delineate within each Federal Energy Regulatory
10 Commission ("FERC") account all revenues, expenses and investment associated with
11 the RSP project.¹³⁸ The tracked information shall accompany or be made available with
12 the filing of its next rate case for Commission consideration.

13 **B. Income Tax Credits**

14 The IRA of 2022, signed into law in 2022, provides tax credits and incentives for
15 clean energy projects, such as those projects that qualify under section 45, 45Y 48, 48E
16 of the Internal Revenue Code.

17 Production Tax Credits and Investment Tax Credits are the two main types of
18 income tax credits.

¹³⁷ Ameren Missouri response to Staff Data Request 0014.

¹³⁸ Similar to Staff's recommendation in EA-2022-0245, EA-2023-0286, and EA-2025-0239.

1 A Production Tax Credit is an income tax credit calculated based on the amount of
2 electricity produced and sold by a qualified facility. The credit amount is determined by
3 the kilowatt-hours(kwh) of electricity produced and it is typically available for a 10-year
4 period beginning on the date the qualified facility is originally placed in service.

5 An Investment Tax Credit is an income tax credit calculated as a percentage of the
6 qualifying investment or cost of an energy project. The credit amount is based on the
7 costs incurred to construct or acquire the property. The base rate is often 6%, which can
8 multiplied up to 5 times or 30% if specific prevailing wage labor and apprenticeship
9 requirements are met. The prevailing wage requirement mandates that all laborers and
10 mechanics employed by a taxpayer, contractor, or subcontractor in the construction must
11 be performed by qualified apprentices from a registered apprenticeship program. The
12 credit is generally claimed for the taxable year in which the property is placed in service.
13 Ameren Missouri expects all of the projects to qualify for the base 30% ITC as its analysis
14 indicates the ITC provides a higher overall customer benefit than the PTC.¹³⁹

15 Both types of base credits may be increased by bonus credit amounts if the project
16 meets certain criteria such as for domestic content, location in an energy community, and
17 location in a low-income community. The domestic content bonus credit is available to
18 taxpayers that certify their qualified facility, energy project or energy storage technology
19 was built with certain percentages of steel, iron or manufactured products that were
20 mined, produced or manufactured in the United States. The domestic content bonus

¹³⁹ Ameren Missouri response to Staff Data Request 0066.

1 credit provision increases the available investment tax credit (for investing in certain
2 property used to produce electricity from renewable sources) by increasing the energy
3 percentage by 10%.¹⁴⁰ Ameren Missouri is pursuing domestic content bonus credit for all
4 of the projects that are the subject of this CCN.

5 The energy community bonus credit is a supplemental tax credit established by
6 the IRA to incentivize clean energy investment in areas with historical ties to the fossil fuel
7 industry or environmental contamination. The Castle Bluff BESS facility will be located on
8 the former Meramec Energy Center facility site and meets the definition of an energy
9 community; therefore, Ameren Missouri is pursuing the Energy Community Bonus credit
10 for an additional 10%.

11 The One Big Beautiful Bill Act (“OBBBA”), enacted in July 2025, heavily modified
12 the technology neutral Clean Electricity Production Credit (45Y) and Clean Electricity
13 Investment Credit (48E) particularly for wind and Solar Projects (BESS projects remain
14 eligible for the full income tax credit through 2033 if construction begins before the end of
15 2033, but phases out by 2036). The section 45Y and 48E tax credits are still available to
16 taxpayers with qualified facilities and energy storage technology placed in service after
17 December 31, 2024, however with various restrictions under the OBBBA including such
18 requirements associated with beginning of construction, placed in service, physical Work
19 test, and foreign entities of Concern (“FEOC”) rules.

¹⁴⁰ [Domestic content bonus credit | Internal Revenue Service](#)

1 The following are restrictions:

2 1. Beginning of Construction and Placed in Service Requirements: any
3 Solar Project that begins construction on or before July 4, 2026, is eligible
4 for the full PTC or ITC credit if the facility is placed in service within four
5 years of beginning of construction date. However, if the construction begins
6 after July 4, 2026, the project must be placed in service by December 31,
7 2027, to receive the credits.

8 2. Physical Work Test: the developer of a facility must prove they started
9 “physical work of a significant nature” on or before July 4, 2026.

10 3. Foreign Entity of Concern: These provisions limit tax credits on facilities
11 that use certain foreign equipment, materials or technology from certain
12 foreign entities. These rules place strict restrictions on allowed
13 relationships with certain foreign entities and individuals from “covered
14 nations,” including China, Iran, North Korea, and Russia. The FEOC
15 restrictions apply to both BESS and Solar Projects for which construction
16 starts in 2026. To qualify for income tax credits, at least 55% and 40% of
17 the manufactured products used in the BESS and Solar Projects,
18 respectively, must not be sourced from a PFE.¹⁴¹

19 Ameren Missouri has relayed that for projects that began construction for income
20 tax purposes prior to January 1, 2026, the only FEOC restrictions applicable to the
21 projects could be the “effective control” rules.¹⁴² However, Ameren Missouri plans to

¹⁴¹ Ameren Missouri response to Staff Data Request 0033.

¹⁴² The effective control rule generally means specific authority over keys aspects of the production of eligible components or energy generation in a project, which are not included in measures of control through authority, ownership, or debt.

carefully review and negotiate each contract applicable to the project(s) and will not agree to any provisions that are consistent with the effective control factors.¹⁴³

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Under both the IRA and the OBBBA, the ITC and PTC tax credits can be monetized by exchanging those tax credits with an independent third party for cash consideration, if an entity does not have the tax appetite to utilize them. The savings generated by these tax credits will be captured in the IRA tracker that was established and approved by the Commission in Case No. ER-2022-0337. These benefits will flow directly to customers in the form of a reduction to the revenue requirement following the first general rate case that occurs after the in-service date of each project.

Table 11 below describes the maximum investment tax credits (including bonus credits) available to the projects in this case. Ameren Missouri states that they have begun work of a significant nature per the IRS notices for each of the projects and expects to place the projects in service in time to qualify for the associated tax credits.¹⁴⁵

¹⁴³ Effective control factors are the criteria or metrics used to assess whether a Prohibited Foreign Entities (PFE) exerts sufficient influence over a project's cost structure to be considered in effective control.

¹⁴⁴ Ameren Missouri response to Staff Data Request 0033.

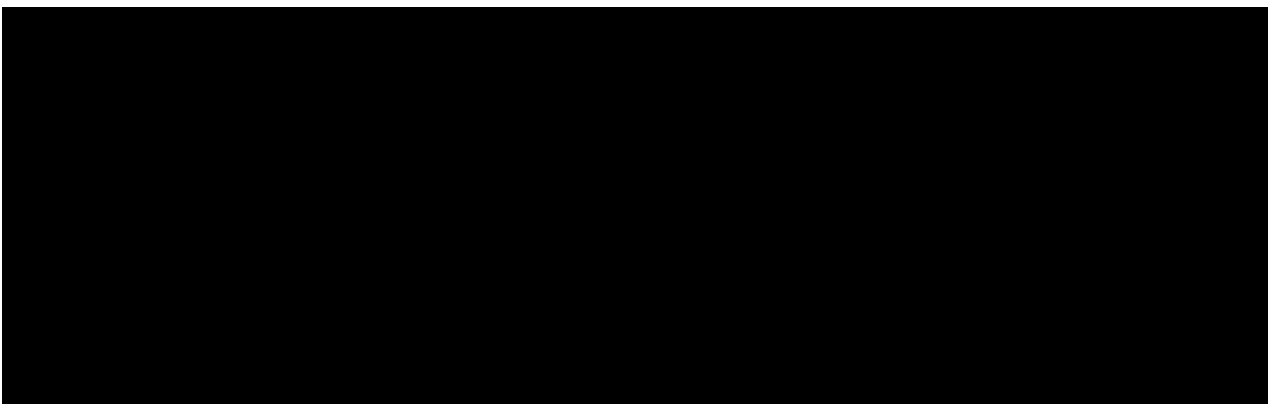
¹⁴⁵ Ameren Missouri response to Staff Data Request 0086.

Staff recommends that Ameren Missouri notify Staff within this docket of the final ITC percentage (including bonus credits) that will be used for the BESS projects and also if Ameren Missouri intends to utilize PTCs or ITCs for the Solar Projects. Staff recommends that all documentation related to tracking, monitoring and ensuring that the prevailing wage and apprenticeship and any domestic content requirements be available for Staff to review in the rate case following the in-service date of the project.

Table 11: Income Tax Credit Summary

Project	Castle Bluff BESS	Huck Finn BESS	Millcreek BESS	Tom Sawyer Solar	Ringer Solar
ITC	30%	30%	30%	30%	30%
Domestic Content Bonus	10%	10%	10%	10%	10%
Energy Community Credit	10%	N/A	N/A	N/A	N/A
Expected In-service Date	2028	2028	2028	2028	2029

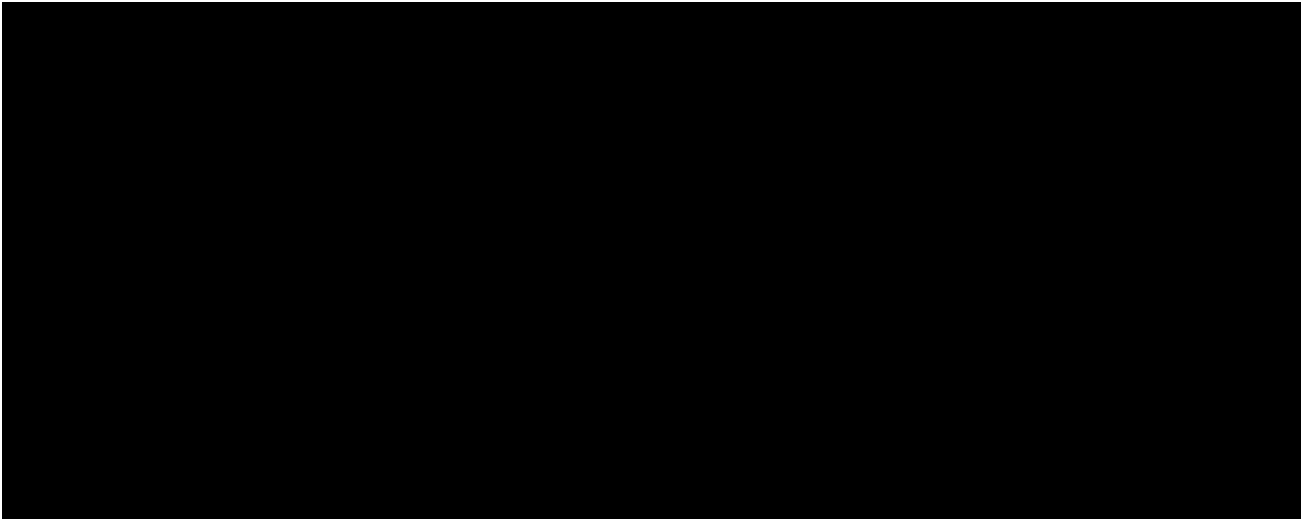
Table 12: Tax Credits Summary without Risk Adjustment



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¹⁴⁶ Ameren Missouri response to Staff Data Request 0066.

Table 13: Tax Credit Summary with Risk Adjustment



C. Chapter 100 Agreements for Tom Sawyer and Ringer Solar Projects

A chapter 100 agreement refers to an agreement established under the regulatory framework codified in sections 100.010 through 100.200 of the Revised Statutes of Missouri (RSMo) that allows local municipalities (cities and counties) to offer tax incentives to businesses to encourage economic development.¹⁴⁷ Chapter 100 authorizes cities and counties to issue industrial development bonds to finance a wide variety of commercial facilities and to offer property abatements. The incentive hinges on the issuance of industrial development revenue bonds. Under this legal structure, the municipality issues bonds and uses the proceeds to take legal title to a project's real property (the solar facility) pursuant to a lease agreement. The bonds carry no liability for

¹⁴⁷ [Chapter 100 Program Summary | Department of Economic Development.](#)

the county; Ameren Missouri is solely responsible for all principal and interest payments through its lease payments. Once the bonds are retired at the end of the agreement, a county can transfer the property back to Ameren Missouri for a nominal fee, and the assets return to a regular property taxes assessment. Because the counties (Audrain County for Tom Sawyer Solar and Stoddard County for Ringer Solar) own the assets, they become tax-exempt under their owners status, so rather than Ameren Missouri paying traditional property taxes that would be more costly, they will pay payments in lieu of taxes (“PILOTs”) to the individual counties. In addition, the chapter 100 arrangement for PILOTs is more beneficial for the counties in which the solar projects would be located because those counties will retain all money paid for the PILOT rather than receiving only a portion of traditional property taxes. Ameren Missouri has utilized this type of financing before for Split Rail Solar, Vandalia, and Bowling Green facilities. Please refer to Table 14 below demonstrating the reduced cost that Ameren Missouri anticipates will occur over the life of the projects by utilizing the chapter 100 structure:

Table 14: Traditional Property Tax vs PILOT

Solar Project	Traditional Property Tax	PILOT
Tom Sawyer	\$126,444,651	\$15,365,946
Ringer	\$219,114,306	\$27,213,497

Ameren Missouri is seeking to utilize chapter 100 on both two Solar Projects. The chapter 100 agreement with Audrain County (Tom Sawyer Solar) has been executed, however the agreement with Stoddard County (Ringer Solar) has yet to be finalized.

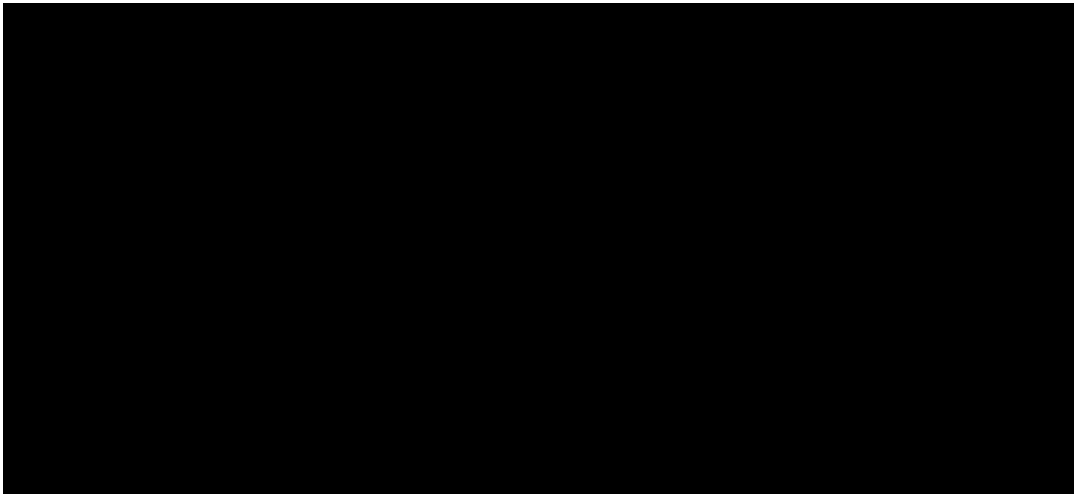
1 In order to implement the chapter 100 structure, Ameren Missouri will lease the Solar
2 facilities with the various counties. The counties will hold legal title, but the lease will
3 allow Ameren Missouri to operate and control the facilities as if it holds legal title.
4 The lease requires the lessee to make the lease payments to the counties, and the
5 counties are to make bond payments to the bondholder, in this case Ameren Missouri.
6 The lease payments and bond payments will offset each other for no net revenue impact
7 for either Ameren Missouri or the counties. Under standard accounting rules ASC 842 for
8 leases, even though the counties legally own Solar facilities during the PILOT term,
9 Ameren Missouri must keep the facilities recorded on their books. The transaction is not
10 a “true sale” as Ameren Missouri has an option or obligation to buy the facilities back for
11 a nominal fee at the end of the PILOT agreement thus it is treated as a failed
12 sale-leaseback. Ameren Missouri will continue to depreciate the asset as a capital asset
13 on their balance sheet, and the PILOT payments are simply expenses as they are paid.
14 This allows Ameren Missouri to recognize the facilities assets and depreciation on its
15 books and records and allows for possible PISA or RESRAM treatment.

16 **D. Operation and Maintenance (“O&M”)**

17 O & M expense represents the day-to-day costs required to operate and maintain
18 a facility to ensure Ameren Missouri provides safe and reliable service. For the Solar and
19 BESS Projects included in this CCN, these expenses include costs such as internal labor
20 and materials, PILOTs, and insurance expense.

Please refer to Table 15 below and following descriptions that summarizes the starting estimated annual costs for each of the projects as part of this CCN proceeding. Operation and Maintenance (O&M) amounts in this docket are estimated costs. They are calculated by taking the base year amount and escalating it by 2% annually over the life of each project¹⁴⁸.

Table 15: Future Ongoing O & M



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Staff Witness: Paul K. Amenthor

E. In-service Criteria

In-service criteria are the operational tests and performance requirements developed by Staff to determine whether a new facility or unit is “fully operational and

¹⁴⁸ Ameren Missouri response to Staff Data Request 0045.

¹⁴⁹ Long Term Service Agreement.

1 used for service” under Section 393.135, RSMo. 2000, which prohibits recovery of costs
2 associated with a facility before that standard is met:

3 [A]ny charge made or demanded by an electrical corporation for
4 service, or in connection therewith, which is based on the costs
5 of construction in progress upon any existing or new facility of the
6 electrical corporation, or any other cost associated with owning,
7 operating, maintaining, or financing any property before it is fully
8 operational and used for service, is unjust and unreasonable,
9 and is prohibited.

10 The criteria generally include requirements applicable to all types of projects, such as
11 completion of all major construction work, successful completion of all preoperational
12 testing, and demonstration that the facility or unit meets applicable contractual
13 performance guarantees. Staff also develops project-specific criteria that reflect the
14 unique design and operating characteristics of the new facility or unit.

15 Ultimately, the purpose of the in-service criteria is to demonstrate to the
16 Commission that the project has achieved the level of performance required by Section
17 393.135 and that Missouri ratepayers are receiving the full benefits of the facility or unit
18 for which they will ultimately be asked to pay through rates.

19 **1. Solar In-Service**

20 Ameren Missouri Witness Scott Wibbenmeyer provided recommended Solar
21 in-service criteria as Schedule SW-d12 to his direct testimony. Mr. Wibbenmeyer has
22 recommended the following criteria:

- 23 1. Solar Block Circuit major construction work is complete.
24 2. Solar Block Circuit preoperational tests have been successfully
25 completed.

3. Facility or Solar Block Circuit successfully meets contract operational guarantees that are necessary for satisfactory completion of all other items in this list.

4. Upon observation of the facility or Solar Block Circuit for 72 consecutive hours, the facility or Solar Block Circuit will have demonstrated that when sunlight was shining on it during that period it produced power in a standard operating mode.

5. Facility or Solar Block Circuit shall meet at least 95% of the guaranteed capacity (in MW AC) based on the Capacity Test in Attachment 1. The Capacity Test shall determine the facility's Corrected Capacity at the Design Point Conditions.

6. Sufficient transmission/distribution interconnection facilities shall exist for the total plant design or Solar Block Circuit net electrical capacity at the time the facility or Solar Block Circuit is declared fully operational and used for service.

7. Sufficient transmission/distribution facilities shall exist for the total plant design net electrical capacity into the utility service territory at the time the facility or Solar Block Circuit is declared fully operational and used for service.

These criteria are consistent with in-service criteria approved by the Commission in other cases, most recently in Docket No. EA-2024-0212. Staff recommends these criteria be ordered by the Commission in this case to evaluate the Tom Sawyer and Ringer Solar Projects before their inclusion in rates.

Staff Witness: Amanda Arandia

2. BESS In-Service

The BESS projects in this case will be the second, third and fourth utility scale battery project proposed to be operated by an electrical corporation within Missouri. The first utility-scale battery, located at the former Rush Island site, is not yet in service. Ameren Missouri Witness Scott Wibbenmeyer has proposed a set of in-service criteria that are almost identical to those agreed to within EA-2025-0238, though the capacity test associated with these criteria has been substantially modified. Staff notes that the capacity test was modified to allow a small range during each of the charge and discharge portions of the capacity test where previously there was not a range built into this test. The previous BESS capacity test had three charge/discharge phases, and the capacity test could only transition from one phase to the next when the BESS system could no longer charge/discharge, depending on the phase. The new language grants Ameren Missouri a small range during these tests where it can move onto the next portion before the system is completely charged/discharged. When the BESS system is almost completely charged/depleted, the charge/discharge power will quickly begin to fall from 100% of the guaranteed power capacity towards the 2%¹⁵⁰ threshold that was added. This also happens if the system stops charging/discharging before it is completely charged/discharged. Whenever a BESS system stops charging/discharging the charge/discharge power will fall to 0% of the guaranteed power capacity.¹⁵¹ This change

¹⁵⁰ Schedule SW-D8 of Scott Wibbenmeyer's Direct Testimony.

¹⁵¹ Ameren Missouri's Response to Staff Data Request 0097 states: "In a BESS, charge power (MW) is the rate at which electricity is absorbed from the grid and stored in the batteries, while discharge power (MW)

1 brings about a problem with other parts of the capacity test. If there were an issue with a
2 BESS system operating at maximum capacity for an extended period of time, Ameren
3 Missouri could perform a test where the system meets the minimum Guaranteed Power
4 Capacity during a short period of time where the charge and discharge power falls below
5 2% when the BESS system is manually stopped from charging/discharging instead of
6 waiting until the system is full/empty, then perform a second test where the system meets
7 the Guaranteed Energy Capacity over a significantly longer period of time. The Capacity
8 test summary referred to within Ameren Missouri's in-service criteria does not state that
9 both conditions must be met within a single capacity test. The Capacity test in the
10 previous case did not have this issue because the test could only be performed by fully
11 draining and fully charging the BESS systems during each test, which would catch an
12 issue such as the system being unable to operate at full capacity for an extended period
13 of time. There are several ways to fix this issue, but the simplest would be slightly
14 modifying Criterion 5 to read "Facility shall meet both 98% of the Guaranteed Power
15 Capacity and Guaranteed Energy Capacity in the same test based on the Capacity Test in
16 Attachment 1. The Capacity Test shall determine the facility's Corrected Capacity at the
17 Design Point Conditions." A full list of Staff's recommended BESS System in-service
18 criteria can be found within Schedule BN-r1. Ensuring that the system passes both parts

is the rate at which electricity is delivered from the batteries to the grid." Data Request 0097 is included as Schedule BN-r2.

1 of the test within the same test would close this potential loophole and ensure the BESS
2 systems are fully operational when they enter service.

3 As part of the Stipulation and Agreement within EA-2025-0238, Ameren Missouri
4 agreed to meet with Staff to discuss additional capacity tests before contracting its
5 next capacity test for a BESS project.¹⁵² Ameren Missouri's response to Staff Data
6 Request 0095¹⁵³ states that the contract negotiations are still ongoing. Ameren Missouri
7 reached out to Staff to set up a meeting to discuss additional capacity tests and is
8 scheduled for August 3, 2026. Ameren Missouri is scheduled to accept bids for the
9 BESS systems in *** [REDACTED] ***.¹⁵⁴ Staff may have additional in-service
10 recommendations within Surrebuttal based upon this meeting.

11 *Staff Witness: Brodrick Niemeier*

12 **VI. Summary of Staff Recommendation and Recommended Conditions**

13 Staff reviewed the filing information submitted with the CCN application for the
14 proposed projects. It should be noted that within the CCN application, permission is
15 being sought for the construction of six (6) different projects in five (5) separate locations.
16 In summary and based on Staff's review of the Tartan Criteria: 1) the Project is needed;
17 2) Ameren Missouri is qualified to construct, install, own, operate, maintain, and
18 otherwise manage the Project; 3) Ameren Missouri has the financial ability to undertake

¹⁵² The Non-Unanimous Stipulation and Agreement within EA-2025-0238 states in paragraph 5.h: "The Company agrees to meet with Staff before contracting its next capacity test for a BESS project to discuss whether and to what extent an additional capacity test could be reflected in future BESS supply contracts."

¹⁵³ Ameren Missouri's Response to Staff DR 0095, attached as Schedule BN-r3 is marked Highly Confidential for a different portion of the response.

¹⁵⁴ Ameren Missouri Response to Staff DR 0030, attached as Highly Confidential Schedule BN-r4.

1 the Project; 4) the Project is economically feasible; and, 5) the Project is in the public
2 interest with the inclusion of conditions that Staff recommends the Commission order as
3 a condition of any CCN granted in this case:

4 **A. Economic Conditions**

5 In light of the observed increase in Solar costs (\$/kW) in this CCN application
6 relative to both the IRP analysis and current industry benchmarks, Staff recommends the
7 following conditions be ordered by the Commission:

- 8 a. Staff recommends that if Ameren Missouri intends to rely upon IRP analysis in
9 future CCN applications, that Ameren Missouri be directed to perform cost
10 analysis using updated Solar cost assumptions to accurately reflect all relevant
11 factors- both direct and indirect- that influence Project costs.
- 12 b. Ameren Missouri should account for prolonged winter stress scenarios and
13 consider longer duration storage options in its first IRP filed under 393.1900 RSMo.
- 14 c. If the Company relies primarily on the IRP analysis to justify the economic
15 feasibility components of the CCN request for the future CCN applications, prior
16 to its first IRP under 393.1900 RSMo., the Company shall conduct an updated
17 analysis upon the occurrence of a material change in capital costs, resource
18 availability, tax credit assumptions, or fuel and market prices. The Company shall
19 perform an updated analysis to refresh those inputs in the economic modeling.
20 Such updates may include, as applicable, potential cost mitigation strategies,
21 updated capital costs estimates, ITC/PTC or other tax credit assumptions, and
22 other material resource-specific assumptions. For purposes of the updated
23 analysis the Company shall evaluate the resource portfolio using the previously
24 modeled market scenario or sensitivity that reasonably best reflects then-current
25 conditions and expectations.

26 *Staff Witness: Hari K Poudel, PhD*

B. Auditing Conditions

- a. Ameren Missouri will retain and provide to staff, during the next rate case proceeding that includes the following projects in rate base (Tom Sawyer Solar, Ringer Solar, Castle Bluff BESS, Huck Finn BESS, and Millcreek BESS), all supporting documentation relied upon by Ameren Missouri for eligibility of the ITC for each project, including but not limited to, FEOC restriction requirements, and any third-party consultant documentation related to tracking, monitoring and ensuring that wage and domestic content requirements are met.
- b. Ameren Missouri will file quarterly progress reports of the construction of each project. This report shall include, but not be limited to, updates on permitting, plans, specifications, construction costs and milestone updates, as well as updates regarding any impacts from legislative or executive actions, including tariffs, tax credits and Foreign Entities of Concern implications.
- c. Staff recommends that any PISA and RESRAM ratemaking treatment for the projects be determined in a future rate case when the asset is in service.
- d. Staff recommends that all documentation related to tracking, monitoring and ensuring that the prevailing wage and apprenticeship and any domestic content requirements be available for Staff review in the rate case following the in-service date of the Projects.
- e. Staff recommends that Ameren Missouri notify Staff within this docket of the final ITC percentage (including bonus credits) Ameren Missouri believes will be applied to the Projects costs.
- f. If the Commission grants the asset for the RSP, RSP-LLC, or other subscriber program, Staff recommends that Ameren Missouri track and specifically delineate within each FERC account all revenues, expenses and investment associated with the designated subscriber program. The tracked information shall accompany or

be made available with the filing of its next rate case for Commission consideration.¹⁵⁵

g. If total costs of any project change by more than 15% of either the base amount or risk adjusted project costs, Ameren Missouri shall notify the Commission within this docket, a description of the change in cost, the reason for the cost increase and how Ameren Missouri attempted to mitigate that cost.

h. Ameren Missouri shall file within this docket a chapter 100 (PILOT) agreement or separate case docket the executed chapter 100 agreement with Stoddard County in relation to the Ringer Solar Project once finalized.

Staff Witness: Paul K. Amenthor

C. Engineering Conditions

a. Ameren Missouri shall submit an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages within ninety (90) days prior to the date that each of the BESS and Solar Projects will be placed in-service,¹⁵⁶ and Ameren Missouri shall submit final plans for restoration of safe and adequate service after significant, unplanned/forced outages no later than sixty (60) days after each of the Projects is placed in-service, consistent with what was approved by the Commission in Case nos. EA-2025-0238 and EA-2025-0239.

b. A copy of the site-specific Hazard Mitigation Analysis, and Hazard Mitigation Plan developed for each BESS facility.

c. A copy of any procedures, best practices, etc. that the Ameren Environmental team may develop regarding environmental mitigation or containment methods

¹⁵⁵ See EA-2022-0245, Report and Order, Page 37, paragraph 4 (Ameren Missouri shall track and specifically delineate within each FERC account all revenues, investments and expenses associated with the Renewable Solutions Program and the Boomtown Solar Project. The tracked information shall accompany or be made available with the filing of its next rate case for Commission consideration.”).

¹⁵⁶ Ameren Missouri has documented processes governing their responses to unplanned/forced outages for its Switching Stations that will also be applicable to the new Quinn Switching Station.

1 developed and implemented a part of a fire response strategy to be followed at the
2 BESS facilities.

3 d. Provide copies of final engineering drawings depicting the built condition
4 (i.e. "As-built drawings") of the Tom Sawyer Solar Project; the Ringer Solar Project;
5 the Castle Bluff BESS project; the Huck Finn BESS project; the Millcreek BESS
6 project; and the Quinn Switching Station project when they become available.

7 e. Provide copies of final engineering drawings depicting the built condition
8 (i.e. "As-built drawings") of the Quinn Switching Station project and all
9 connections when they become available.

10 *Staff Witness: Donald A. Fontana, PE*

11 **D. Reporting Requirements**

12 a) Ameren Missouri shall provide construction reporting for each of the three (3)
13 individual projects that will be specific to the particular BESS Projects being
14 reported on and shall include quarterly progress reports on the various
15 construction aspects of each Project. The format of the construction reporting
16 documents can be identical for each BESS Project, provided that the name of each
17 individual Project is contained in a header or footer on all pages. This report shall
18 include, but not be limited to, (i) updates on permitting, plans, specifications,
19 construction costs and milestone updates, (ii) updates regarding any impacts that
20 Ameren Missouri knows will affect the particular BESS Project from legislative or
21 executive actions, including tariffs, tax credits and Foreign Entities of Concern
22 implications; (iii) information on any delays to the construction or anticipated in-
23 service date of the particular BESS project, including any impacts to the particular
24 BESS project and any mitigating actions Ameren Missouri will take as a result, and
25 (iv) weather delays or delays due to other causes that have potential to affect the
26 construction schedule.

b) Ameren Missouri shall provide a copy of all State, Federal, and Local permits that Ameren Missouri obtains for each BESS project shall be submitted with the first quarterly construction progress report.

c) Ameren Missouri shall submit a copy of all construction reporting documents which Ameren Missouri requires from their BTA partners; EDF, and Invenergy, with their quarterly reporting submittals.

d) Ameren Missouri shall submit a copy of all State, Federal, and Local permits that Ameren Missouri obtains for the Quinn Switching Station quarterly construction progress reporting documents, but clearly indicating the documents are for the Quinn Switching Station project.

Staff Witness: Donald A. Fontana, PE

Appendix 1 - Staff Credentials

Appendix 2 - Staff Schedules

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

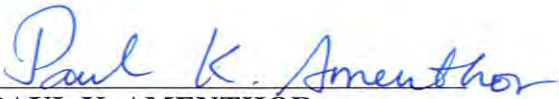
In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems

AFFIDAVIT OF PAUL K. AMENTHOR

STATE OF MISSOURI)
)
COUNTY OF ST. LOUIS) ss.

COMES NOW PAUL K. AMENTHOR and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

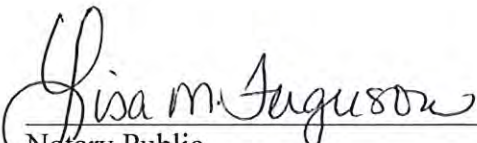


PAUL K. AMENTHOR

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of St. Louis, State of Missouri, at my office in Chesterfield, on this 3rd day of August 2026.





Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Union	)	
Electric Company d/b/a Ameren Missouri	)	
for Permission and Approval and	)	Case No. EA-2026-0183
Certificates of Public Convenience and	)	
Necessity Authorizing it to Construct	)	
Renewable Generation Facilities and Battery	)	
Energy Storage Systems	)	

AFFIDAVIT OF AMANDA ARANDIA

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

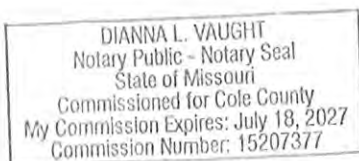
COMES NOW AMANDA ARANDIA and on her oath declares that he is of sound mind and lawful age; that she contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to her best knowledge and belief.

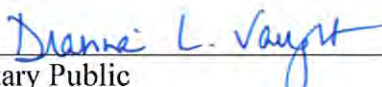
Further the Affiant sayeth not.


AMANDA ARANDIA

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 4th day of August 2026.




Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Union	)	
Electric Company d/b/a Ameren Missouri	)	
for Permission and Approval and	)	Case No. EA-2026-0183
Certificates of Public Convenience and	)	
Necessity Authorizing it to Construct	)	
Renewable Generation Facilities and Battery	)	
Energy Storage Systems	)	

AFFIDAVIT OF MALACHI BOWMAN

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW MALACHI BOWMAN and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

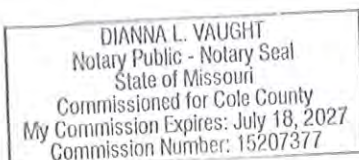
Further the Affiant sayeth not.

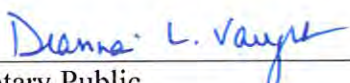


MALACHI BOWMAN

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of August 2026.





Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems

AFFIDAVIT OF CLAIRE M. EUBANKS, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW CLAIRE M. EUBANKS, PE, and on her oath declares that he is of sound mind and lawful age; that she contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to her best knowledge and belief.

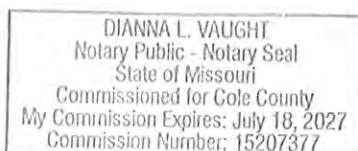
Further the Affiant sayeth not.



CLAIRE M. EUBANKS, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 10th day of August 2026.





Notary Public

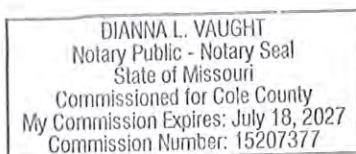
In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems)

[illegible]

Further the Affiant sayeth not.

Donald A. Fontana

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of August 2026.



Dianne L. Vaughn
Notary Public

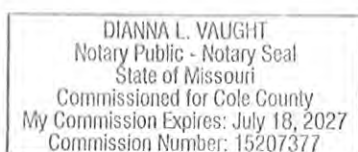
In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems)

[illegible]

Further the Affiant sayeth not.


RANDALL T. JENNINGS

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 4th day of August 2026.



Diana L. Vaughn
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

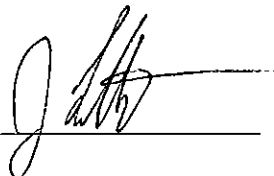
In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems

AFFIDAVIT OF J LUEBBERT

STATE OF MISSOURI)
)
COUNTY OF COLE) ss.

COMES NOW J LUEBBERT and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

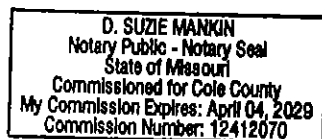
Further the Affiant sayeth not.

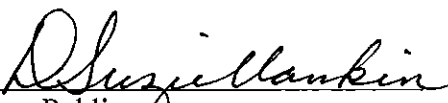


J LUEBBERT

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 6th day of August 2026.





Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems

AFFIDAVIT OF BRODRICK NIEMEIER

STATE OF MISSOURI)
)
COUNTY OF COLE) ss.

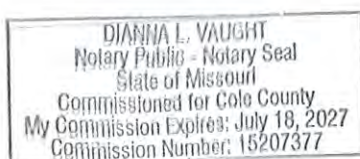
COMES NOW BRODRICK NIEMEIER and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

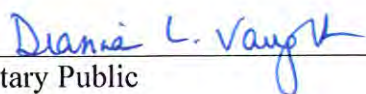
Further the Affiant sayeth not.


BRODRICK NIEMEIER

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of August 2026.




Notary Public

OF THE STATE OF MISSOURI

AFFIDAVIT OF HARI K. POUDEL, PhD

Dianna L. Vaughn
Notary Public

In the Matter of the Application of Union)
Electric Company d/b/a Ameren Missouri)
for Permission and Approval and) Case No. EA-2026-0183
Certificates of Public Convenience and)
Necessity Authorizing it to Construct)
Renewable Generation Facilities and Battery)
Energy Storage Systems)

STATE OF MISSOURI)
)
COUNTY OF COLE) ss.

Further the Affiant sayeth not.

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of August 2026.

